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EDITORIAL—SOME HIGH LIGHTS

State :

Fifth Plan Approach : The State Government and State Planning Commission are drafting the State approach to the Fifth Plan for submission to the Union Planning Commission by 30th July, 1972. The State approach document draws on three sources : (a) the assessment of the level of development that will have been reached by the end of the Fourth Plan in some 23 areas ranging from changes in the pattern of land utilisation to water supply, sanitation and housing. The reports of the fifteen task forces of the State Planning Commission (See Vol. I No. 10 of the Bulletin) which are now nearing completion provide the retrospective sectoral evaluation for this exercise; (b) qualitative studies undertaken by the Departments concerning land reforms and Central and Centrally sponsored programmes for small farmers, marginal farmers, drought prone dry areas, rural employment, educated unemployment and industrially backward areas and other ongoing programmes run by the State; (c) indication of State priorities in light of overall national objectives and the financial, manpower and material resources and organisational and institutional capabilities for the Fifth Plan period as set forth in the Draft Perspective Plan Frame document summarised in the last issue of the Bulletin. All States in the Country are now engaged in a similar exercise and on this basis the Union Planning Commission will issue an Approach paper by 30th September, setting forth the dimensional hypothesis for the Plan, the policy and resource implications for alternative rates of growths and of other objectives such as employment, income distribution, regional balance, meeting basic minimum needs and self reliance. On the basis of the Approach Paper, Guidelines for the preparation of Draft outlines of State Plans will be issued by Union Planning Commission in November. This process of discussion and exchange of information between the Centre and State in the formulation of the Fifth Plan is very important. As pointed out in Vol. II No. 1 of the Bulletin in the absence of a policy and political frame for decentralized planning, the State must develop its planning from as near the people as it can which for the present is the development district, and, bearing in mind the national objectives, on this basis formulate its strategy and decide on its priorities. Only that firm basis should it engage in the information exchange which the Approach Paper and Guidelines from the Centre represent. There will be minor modifications and adjustments in light of overall resource constraints. But this exchange should not be allowed to distort the State strategy or change basically its priorities.

The resource problem for the State is going to be serious. In the present financial frame, there are State development obligations but limited State resources for development. All resources of this State and all other States are pooled in a National pool and are then divided between the Centre for the Centrally sponsored and Centrally assisted projects on the one hand and for the State projects on the other. In this dividing of the common pool of resources, this State's share of what is called Central assistance has been steadily declining. For the First Plan, it was 10.8 percent of Central assistance to all States, for the Second Plan 9 percent, for the Third Plan 7.4 percent, for three annual

plans 6.8 percent and for the Fourth Plan 4.7 percent. And the prospects for the Fifth Plan are even more sombre. The major criterion for dividing the pool has increasingly become the degree of backwardness of the State, in place of the earlier criteria, population (60 percent), per capita income (10 percent), resource mobilisation (10 percent), continuing projects (10 percent) and natural calamities, tribals etc. (10 percent). In place of resource mobilisation and per capita criteria the social indicators of literacy rate, hospital beds, drinking water supply, unemployment, value added manufacture are being given increasing weightage. Under this approach Tamil Nadu's share of Central assistance, as well as those of Maharashtra and Gujarat will decline. There is here a real dilemma because the State and the Country must give preferential treatment to backward regions wherever they may be located. This is sound national policy as well as State policy. At the same time this principle must be applied in such a manner as not to place a premium on district and State planning, efficiency in execution and resource mobilisation. To some extent the dilemma would be met if the breakdown of the backwardness criteria is not applied to States but to districts, taluks, and blocks. The other and equally important solution is the development of a financial base for planning and execution of the programmes arising out of the agreed strategies of the Fifth Plan. On this the State's resources—collected by the Centre and accruing to the State—must be expanded beyond the one third now accruing to it. The excise revenues as well as some of the surcharges on other taxes should be established as State resources and the present division of Central assistance into 70 percent loans and 30 percent grants should be reversed, as these resources are being used, like Central infrastructural investments, in the programmes to fight poverty which is a common national concern.

Indebtedness to the Union Government: The urgency of the financial resource problem is seen in the State's indebtedness to the Union Government which was Rs. 357.68 crores as at the end of December, 1971. The State stood ninth in the level of indebtedness being surpassed by Uttar Pradesh (Rs. 737.56 crores), Rajasthan (Rs. 663.97 crores), West Bengal (Rs. 616 crores), Bihar (Rs. 615.07 crores), Andhra Pradesh (Rs. 568.22 crores), Maharashtra (Rs. 504.80 crores), Madhya Pradesh (Rs. 408.61 crores) and Orissa (Rs. 406.86 crores). Further as noted in Vol. II No. 3, concurrent with the decision to stop all overdrafts from this year, the Union Government has taken overdrafts of this State and other States, and from April 1, overdrafts are available with the Reserve Bank only as ways and means advances to the States. These advances which are to meet temporary imbalances in the State's flow of receipts and expenditure have been from May raised by four times. In May therefore the overdrafts for all States with the Reserve Bank declined from Rs. 711.10 crores to Rs. 37.34 crores. Taking over the overdraft made to the State by the Union Government, has been balanced by the State repaying it from its share of taxes and Central assistance. There is left the long term problem of the Central loans to the State, which has reached the point where the total loans received during the Fourth Plan will be less than the State's loan repayments to the Union Government. The Fifth Plan discussion and the Sixth Finance Commission's study should be an occasion when this problem should be solved along lines suggested in Vol. II Nos. 3 and 5 of the Bulletin.

Land Development and Industrial Development Banks: The Tamil Nadu State Land Development Bank finished last year with disbursing Rs. 20 crores as loans, more than half of which was to small farmers. Its standards have been above the RBI directives,

with 95 percent against the 70 percent norm for productive purposes, Rs. 6 crores were for sinking wells, an equal amount for deepening wells and Rs. 3 crores for installing pump sets. Under the Agricultural Refinance Corporation schemes, Rs. 22 crores were loaned for 23 minor irrigation projects, five plantation and two land reclamation schemes. As a result its outstanding loans have increased from Rs. 54 crores to Rs. 75 crores, its debentures from Rs. 63 crores to Rs. 85 crores, its paid-up capital from Rs. 2.77 crores to Rs. 5.01 crores and profits from Rs. 26 to 70 lakhs. On this sound development basis, the bank's lending programmes for this year comprise Rs. 20 crores on normal loans, Rs. 6 crores under ARC and Rs. 10 crores under IDA. The adequacy and timely availability of loans to the small farmers represented by this programme are an important part of the agricultural strategy of the State and have important lessons for the co-operative credit institutions. The Industrial Development Bank of India's activities in the State for last year were referred to in Vol. II No. 5 of the Bulletin. Its current programme carried out by a consortium of all India term landing institutions including the Industrial Reconstruction Corporation of India, Lead banks and the State institutions is concentrated on two related activities. It is providing assistance to existing establishments to locate project complexes which are labour intensive and not in need of imported capital in the backward taluks and blocks of the State. The other, and in a sense more critical activity, is the rehabilitation of sick manufacturing units, — textiles, sugar, rice mills, some engineering and automotive units in which considerable investments have been made and which are rapidly declining or closing down. Their rehabilitation is not simply a matter of injecting more capital, and the studies which are being made in each case indicate the kind of managerial and technical assistance and guidance needed to conserve their productive experience and increase their output and employment prospects. Their rehabilitation is also a certain means of increasing the industrialisation momentum of the State. These two cases — the LMB and IDBI — raise the question of increasing the number of State financial institutions in order to develop institutions and resources which can specialise in State problems and provide the special manpower and technical expertise needed by the State's industry and agriculture. Such a development would be a valuable supplement to the excellent work of the All India financial institutions.

Buckingham Canal and City Water Supply: The State project for improving the 100 mile stretch of the Buckingham Canal at a cost of Rs. 4.7 crores and a similar Andhra Pradesh project for its stretch of 160 miles at a cost of Rs. 4.5 crores — all a part of the Fourth Plan — are under study by a Union Government team. It is hoped that its recommendations will be acted upon before the end of the year so that the Fourth Plan targets are met. Meanwhile with a Central grant of Rs. 20 lakhs and a State Government grant of 40 lakhs, dredgers have been purchased for silt clearance and the provision of terminal facilities. A wharf has been constructed at Chintadripet and another is planned at Mylapure and dredging work has started since January. Further a part of the coolant water from Ennore (150 cusecs) under the Cooum Improvement Scheme is being let in the northern part of the Canal, and the coolant waters from the Kalpakkam atomic energy station will be used to flush the southern part. When the project is completed in five years, the canal will be widened to 33 feet and the draft increased to six feet for navigation between the two States, along with roadways and railways on either side of the 10 mile stretch of the Canal in the city. The Madras city water supply is to be improved and expanded with a State loan of Rs. 66.15 lakhs to the city Corporation for the purchase of cast iron pipes and related equipment for several water supply schemes. A part of this

improvement programme involves strict enforcement of city regulations concerning authorisations for new buildings and the kind of water connections they must carry.

Power: Further to the State power needs and forecasts outlined in the last two issues of the Bulletin, the State and the Union Ministry of Irrigation and Power have presented to the Union Planning Commission an additional power generation programme for Tamil Nadu of 940 mega watts in the Fifth Plan at a cost of Rs. 200 crores plus a third unit of 200 MW from Kalpakkam. To the existing thermal capacity of 920 MW, there would then be added a 400 MW thermal unit at the load growth area of Tuticorin and 200 MW expansion of the Ennore power station. To the existing hydel capacity of 1,224 MW, the 100 MW pump storage unit at Kodamparai and a further 200 MW from Suriliyar, upper Tamparaparani, Paraliyar, Kolattipuzha and Nellithura will be added. Even with this addition of 940 MW during the Fifth Plan the State deficit of 3,073 million units by 1980-81 referred to in the last issue of the Bulletin will call for additional schemes.

Cauvery and Siruveni Waters: On the occasion of the meeting of the National Development Council in May, agreement was reached for the settlement of the long standing Cauvery water dispute between Tamil Nadu, Mysore and Kerala. With the help of Prime Minister and the Union Minister for Irrigation and Power, the three Chief Ministers agreed to start de nevo on this important and worrying problem. The Union Government will appoint a fact finding committee of engineers, judges and agricultural experts to collect all the data on the Cauvery waters, its utilisation, irrigation practices, adequacy of present supplier or excessive use, and current and future projects. On the basis of this factual report, the three Chief Ministers will arrive at an agreed allocation of waters between three States. This is an important step forward in resolving a dispute which has been holding up southern development. During the six months of this study, no projects will be started for use of the waters. On the basis of this agreement, the State has withdrawn its case before the Supreme Court. Similar basic agreement has been reached between Kerala and Tamil Nadu on the supply of 1.3 tmc. ft. water from Siruveni to Coimbatore. The Siruveni reservoir will be built by Kerala, funded by Tamil Nadu and a joint board will regulate the water supply. Discussions also have been held between the two Chief Ministers on this occasion concerning Tamil Nadu's request to use more water under the Pandiar-Ponnampuzha project, but has not led to any agreement for the present.

National:

Fifth Plan Strategy: Broad general agreement on the Fifth Plan strategy and objectives (see last issue of the Bulletin) has emerged in discussions of the Union Cabinet, the National Development Council and the Committee of the political parties including the Congress. The investment of Rs. 15,500 crores for employment generation, the production and distribution of wage goods on a mass scale to counter mass poverty, price stability of essential wage goods, increased production by the basic industries of steel fertilisers, cement and engineering goods, increased mobilisation of resources at the State level of the order of Rs. 2,500 crores and in toto of around Rs. 7,500 crores, involving major tax reform to check evasion and black money, and a more equitable rural taxation system—these are the main strategies. Within this frame and in order to spell out the financial implications for the States and Centre of the Fifth Plan, the Sixth

Finance Commission is being set up with wide terms of reference to examine the financial basis and viability of the development responsibilities carried by the States. For this, the present meaningless distinction between Plan and non-Plan expenditure as a basis for deciding on financial allocations as between the States and the Centre must be set aside. It will be necessary, in all sound performance accounting, to distinguish between continuing commitments and new programmes but this distinction must be a straightforward technical budgeting approach, and not made the basis accounting difference as a means of securing a higher allocation. The distinction is meaningless also in view of the fact that for most States, the annual Plan expenditure has come to represent 20-25 of its annual expenditures. To continue scrutinising Plan expenditures in this context, is like the multilateral and bilateral donors examining what they call priority national projects. In both cases, it is the entire programme that must be scrutinised and Finance Commission must look into the entire pattern of Centre-State financing. It must complete its studies with the States and report before January, 1974, so that the financial strategy can be fitted into the Fifth Plan which will be finalised in March, 1974. That strategy must include the conversion of State social and infrastructural loans into grants and the rescheduling of productive loans. One of the major sources of disequilibrium in State Planning is the salary and dearness allowance adjustments which inevitably follow unilateral decision and action by the Centre. There is need in Fifth Plan for a national policy on salaries and allowances to all employees—both Central and State.

Land Ceiling : In the last issue of the Bulletin, the plans for land ceiling legislation in seven States were outlined. The present position of legislated ceilings need to be briefly summarised. As stated in that issue, in this State the 1970 Act reduced the ceiling from 30 to 15 standard acres, with 40 standard acres as the maximum for additional members. Sugar farms and grazing lands are no longer exempted and the exemption for trusts is being withdrawn. Kerala has a ceiling of 20 acres for a family of more than 5, a standard acre being defined as 50 cents for arecanut lands and four acres for palliyal lands. There is no distinction between irrigated and unirrigated land. Plantations are exempt — 230 acres have been located as surplus. In West Bengal the ceiling in 7 hectares for a family of 9 adults for irrigated lands and 9.80 hectares for unirrigated lands. 12 lakh acres are declared as surplus. These three States are the only ones which have ceilings in accordance with the recommendation of the Central Land Reforms Committee (CLRC). In Uttar Pradesh the 1961 Act fixed the ceiling at 40 to 64 acres of fair quality land and has declared 2.73 lakh acres surplus up to December, 1971. In Rajasthan till the new Bill referred to in the last issue of the Bulletin, the 1960 Act fixed the ceiling at 30 standard acres, one standard acre producing 12 maunds of wheat with a net income of Rs. 2,400 per annum. 66,000 acres of surplus land have been located. In Punjab and Haryana the ceiling is 30 standard acres and for a displaced person 50 standard acres. In Maharashtra the 1961 Act fixed a three tier ceiling, 18 acres for perennially irrigated land, 27 acres for two crop areas and 48 acres for monocrop lands. Land irrigated by canal is fixed at 18 acres, by government sources 27 acres, by natural and private sources 48 acres and for dry land between 66 and 126 acres. 3.2 lakh acres have been distributed as surplus. Mysore's ceiling is 27 standard acres. Andhra Pradesh ceiling is 27 to 54 acres for Government irrigated lands and 162 to 324 acres for dry lands. 25,000 acres were located as surplus and 4,100 acres acquired. In Orissa the ceiling is 20 acres for perennially irrigated, 30 acres for seasonally irrigated and 80 acres for dry lands. In Bihar the

ceiling is 20 acres for Government flow irrigated land, 16 acres for Government lift irrigation land and no ceilings for lands irrigated by private sources. Assam is considering ceiling legislation.

Against this widely varying ceiling legislation with its tardy and ineffective execution, the August 1971 CLRC recommendation for a ceiling 10 to 18 standard acres for a family of five for lands having assured irrigation facilities and capable of growing two crops a year represented an effort to introduce an element of uniformity and justice. In the ten months that have since elapsed, the recommendation has not been acted upon by any except Tamil Nadu, Kerala and West Bengal. The implications of these recommendations are being widely discussed in the Union legislature, the State legislature, the NDC, the Union Cabinet and in the political parties. The major issue being debated is as to whether there should be separate ceilings for Government irrigated lands (10—18 standard acres) and for privately irrigated lands (30 standard acres). In favour of not making a distinction are the considerations that private irrigation projects have been financed through institutional credit on easy terms or through State subsidy. Electricity rates for such farms are low and subsidised and private tube well irrigation is more assured than government irrigation. In favour of making a distinction is the fact that private irrigation involves the farmer in heavy capital and recurring costs and for the large land owners there are no longer any subsidies. In fact studies by the Irrigation Commission show that in Uttar Pradesh the cost of irrigation from Government sources is between Rs. 4 to 14 for rice and Rs. 4 to 14 for wheat, Rs. 1 to 8 for rice in Orissa and Rs. 18 to 25 in Gujarat. The studies of the Indian Institute of Management, Ahmedabad show that private tube well irrigation puts the cost of wheat at Rs. 72 per acre and private diesel tube well at Rs. 128 an acre. For rice it works out to Rs. 180 per acre for private tube well irrigation and Rs. 320 per acre per private diesel irrigation. If to this cost factor is added the fact that, during the last two decades, of the Rs. 2,000 crores invested is ground water resources, 90 percent is from the private sector and 10 percent from the public sector, there is a case for some distinction between lands having government irrigation and those relying on private irrigation. Added to this is the need for encouraging in every way private irrigation programmes and the various difficulties of classifying and computing them. There are less important problems connected with the ceiling recommendation, such as its applicability to those having land in several States, the definition of a family, the meaning of perennial irrigation, the modality of distribution of surplus land in relation to making small cultivation viable or giving land to the landless, personal cultivation etc. It is necessary that all these issues large and small—be resolved, as they can be, speedily but clearly so that the ceiling legislation can be effectively executed. The working group on land reform of the National agricultural Commission has come out flatly against any ceiling distinction between government and privately irrigated lands. It recommends that the distinction should be whether the irrigation is assured or not, whether it assures two crops or one crop. It proposes that private investment and initiative be compensated by higher rates of payment for acquisition of the surplus, rather than a higher level of ceiling. In any case it rejects market value as the basis for compensation, which it recommends should be a multiple of the land revenue rate. It proposes a ceiling of 10-18 acres for land with assured irrigation with 2 crops, 27 acres for assured irrigation with one crop, a maximum of 54 acres for other types of land. It also defines precisely a family and relates it to the proposed ceiling, proposes that surplus land distribution should be first to cultivating landless, tribals and Harijans, limits exemptions

very precisely and recommends that the legislation be made effective as of September 26, 1970 which was also the CLRC recommendation. Given the composition of the working group, Central and State legislators and economists, it may be the wise and practical course to use this report as the basis of further discussion, agreement and decision by the National Development Council and all the interests involved.

National Production Front: Following the decision not to lower wheat procurement prices referred to in the last issue of the Bulletin, the Budget subsidy of Rs. 100 crores will have to be increased by Rs. 30 crores unless the Union Planning Commission's proposal to restrict the quantity of procurement through quality restrictions is accepted. Such quality standards may, however, work against the small wheat farmer. The wheat subsidy deficit of Rs. 35 crores will be further increased by Rs. 200 crores as a result of increasing the buffer stock from five million tonnes, in addition to the operational stock of three months requirement of wheat and 6 months of rice, which is distributed through fair price shops. There seems no escape from these financial consequences of the refusal to decrease procurement prices. Further supplies of cereals should be used to finance the employment and rural works programme. The related question of fertiliser production demands attention and action as suggested in the last issue of the Bulletin under the section on the **State's Agricultural Development**. The problems are national. First the demand for fertiliser will be increasing to around 45 lakh tonnes in 1974-75 due to the evolving of high yielding fertiliser responsive paddy seeds suitable to different soil conditions, soil testing, the activities of the fertiliser promotion units in the Agricultural Ministry and Departments, opening new retail outlets, the risk cover to banks offered by the Fertiliser, credit Guarantee Corporation etc. This trend to increase in fertiliser offtake may be further accelerated as the factors for slowing the rate of growth of fertiliser application in the last four years are reversed, with their use in paddy, improved distribution (as suggested in the last issue) and an effective education and extension programme. The present production is some distance away from the 1974-75 target and 1976-77 date for self sufficiency. Against a consumption of 27.52 lakh tonnes for 1971-72, the annual report of the Ministry of Petroleum and Chemicals states that domestic production was 12.43 lakh tonnes (9.5 lakh tonnes of nitrogen, 2.93 lakh tonnes of phosphatic fertiliser) against an installed capacity of 19.6 lakh tonnes (14.6 lakh tonnes of nitrogen and 5 lakh tonnes phosphatic). Imports amounted to 9 lakh tonnes at a cost of Rs. 120 crores and the balance met from buffer stocks. The tasks in the fertiliser field are both in the production and distribution spheres—as suggested in the last issue. On production, the double target is to increase by 80 percent domestic output by 1974-75, and reach the goal of self sufficiency by 1976-77. At the present rate of production planning and output, capacity will by then have been increased to forty lakh tonnes and production to thirty lakh tonnes, calling for imports of 15 lakh tonnes and an import bill of over Rs. 200 crores. Installed capacity needs to be increased on schedule. Madras Fertilisers and the Alwaye Unit of Travancore Fertilisers have increased capacity by 2 lakh tonnes; Durgapur and Cochin have started and Goa will by the end of the year, and extension and rationalisation plans are under way at Barauni, Namrup, Sindhri, Orissa, Andhra Pradesh, Gujarat, Tuticorin, Madhya Pradesh and Mithapur. Corresponding to this increased capacity, the gap between capacity and production can be reduced through removal of the past constraints of power cuts and interruptions, industrial unrest and inadequate supply of raw materials. A major effort should be to reduce our mounting imports and bring it down to half of present levels by 1976-77.

The other fact is improved distribution and application which can aslo reduce our reliance on imports. At present the distribution of fertilisers from the Centre follows no pattern either as between the States or in relation to the demand of the various components in each State as the following table shows :

(IN TONNES)

	DEMAND			SUPPLY		
	Nitrogen	Phosphatic	Potash	Nitrogen	Phosphatic	Potash
Andhra Pradesh ...	2,23,000	84,000	22,500	1,27,744	47,928	10,012
Bihar ...	1,25,000	50,000	20,000	78,503	11,417	7,221
Gujarat ...	1,02,503	50,000	7,190	1,14,333	37,982	7,526
Haryana ...	66,050	7,800	900	71,593	8,898	351
Kerala ...	36,600	26,700	32,200	13,207	6,222	23,532
Maharashtra ...	1,18,000	82,000	40,600	76,854	27,664	45,199
Mysore ...	78,600	34,200	20,600	41,831	18,830	14,570
Tamil Nadu ...	1,60,000	40,200	48,250	84,410	16,098	51,000

The case of this State is most peculiar, with small allocations in relation to demand of domestic production and an excess allocation of imports. The result of the present ad hoc inter-State distribution is the coexistence of fertiliser famine and glut within each State—in term of components, transport and timing. There is also need for improved distribution of fertilisers within each State and education of the farmers in their use. This would avoid the current 50 percent loss through leaching, nitrification, lack of moisture and wrong timing and through developing new kinds which release the nutrient elements slowly. (See last issue of the Bulletin.)

In the computer field in place of importing obsolescent machines and renovating them, the Electronic Corporation of India is to manufacture small and medium size computers—TD 10 and TD 32 and mini-computers for commercial and educational use. A second part of the policy is the development of large regional computer centres for use in planning, simulation and model building, development of software and information systems etc. Such centres which will increase computer power in the Country quickly and can be used by small and large users, will start first in Madras at the Indian Institute of Technology (See Vol. II No. 1) for the southern region and be followed by centres in Delhi and Bombay. Production plans for 20,000 electronic desk calculators per annum for educational, industrial and commercial purposes have also been authorised.

In the last issue of the Bulletin, the improved performance of 37 groups of industries was discussed under three heads as well as the slack in some key industries. From the point of view of utilisation of installed capacity, the same distinction applies. That is, electricals, rubber goods, boilers, dairy and tobacco machinery and machine tools increased their ratios of actual production to installed capacity in 1971 and early 1972. These are industries which did well in 1969 and 70 and may have now exceeded 100 percent utilisation. On the other hand machinery, railway wagons, agricultural machinery and food processing units register a decline in capacity utilisation, even allowing for the distortions caused by increase in capacity in some cases. The basic reason for this

decline is steel,—steel plants working well below capacity. It is not surprising therefore that the Hindustan Steel Limited reports a loss of Rs. 45 crores for 1971-72, which is over double that predicted by the Minister in the May 4 Lok Sabha debate. Apart from two profitable years, 1964-65 and 65-66, the company's accumulated losses amount to Rs. 200 crores. Durgapur alone accounts for over 45 percent (Rs. 130 crores) of the loss. The break even point for the company is 84 percent for Bhilai, 58 percent for Rourkela and 97.5 percent for Durgapur. Under these conditions, it may be advisable to split HSL into three units, in order to develop the managerial talent needed for each company, to allow Rourkela and Bhilai to operate at a commercially profitable rate, and to deal with Durgapur in relation to its special problems. The two former are nearer the level of efficiency and productivity of TISCO which works to 85.5 of installed capacity. IISCO's level is 68 percent. The working costs per tonne of ingot steel is Rs. 363 for Bhilai, Rs. 374-424 for Rourkela, Rs. 413 for TISCO, Rs. 446 for IISCO and Rs. 450 for Durgapur. The ten year old basic steel price must be revised and the development rebate continued in some form, in order that the plant modernisation and capacity extension programmes of the units may be executed to meet the targets for next year and the Fifth Plan. There is little need for pessimism in this basic industry as its comparative cost is low on international standards. If, as the World Bank points out, the industry produces at 85 percent instead of the present 65 percent of capacity, the price could be even further reduced by 15 percent. The export targets for this year of 2,15,000 tonnes of pig iron, 61,000 tonnes of heavy and medium structures, and 56,000 of rails—by HSL and TISCO can be met and their profitability increased. More generally 1971-72 has ended with poor public sector performance. Of this total of Rs. 4,682 crores invested in 97 units, the gross profit (before tax) was Rs. 146 crores or 3.9 percent and a net loss above the Rs. 3.37 crores recorded in 1970-71. The Indian Drugs and Pharmaceuticals Limited shows a gross profit of Rs. 1.60 crores and a net loss of Rs. 4.60 crores. The Madras Surgical Instruments factory, one of the three constituent units, has continued to perform poorly compared to the Rishikesh and Hyderabad units.

Industrial Policy : The country's industrial policy is under review and the final formulation will be part of the Fifth Plan Frame. The slow growth in industrialisation, the low growth rate of output and exports and the even slower growth in employment generation of the economy, call for a selective strengthening of the policy of import substitution and export promotion. The World Bank's conclusion is that India, which falls into the high category as a semi-industrial country with 40 to 60 of its total production in manufactures, should increase its exports of capital goods such as machine tools and technologically advanced labour intensive electronic products. In employment it points out even a 7 percent industrial growth provides only a 4 percent employment absorption. As self reliance is not self sufficiency, there is no contradiction between planned import substitution and export growth. In this general setting, the revised industrial policy becomes important and it must be a policy which must be sustained over a period of four Plans. In developing the policy, the current decisions provide useful guidance. The sound reasons for rejecting six industrial license applications and the approval of 30 applications together with the conditions attached to them are a useful pointer ; so too is its initial experience in permitting capacity expansion without itself attempting to make an estimate of demand. The results of the decision to limit the traditional growth of larger industrial houses in order to encourage new entrepreneurial talent and small business also need to be assessed. Finally the diversion of the

expansion of the large business houses to the core industries, backward areas and to the domain so far reserved for the public sector, if the production is essentially export oriented, needs to be carefully studied in evolving the new policy. There is also the emerging joint sector which must be covered by the new policy. If such a policy is related to revised labour and man power programmes, the contribution of the private sector to employment generation can be as important as that to industrial acceleration.

Savings, Investment and Export Trends; Savings and investment ratios are well below the Fourth Plan targets of 13.1 and 12.6 percent of GDP, revised in the mid-term appraisal to 11.1 and 10.2 percent. They stand at 9.6 and 8.2 percent for 1971-72. They are nowhere near the Peason Commission recommended savings ratio trend of 20 percent of GDP by 1980. Instead of moving to the Fourth Plan perspective of 20 percent investment and 18 percent savings by 1980-81, we will be ending the Fourth Plan with an average annual of 10 percent investment and 8.9 percent saving. This poor performance in a key variable of the development programme and the uncertainties it introduces to the resource mobilisation target for the Fifth Plan are traceable to some four factors, on each of which correction action needs to be taken immediately. A first cause is that the public sector has not made its contribution to savings. Instead of the high marginal rate of savings (73.5 percent) assumed in the Fourth Plan the decline in its gross profits and the net losses have been referred to earlier. A second cause has been the extraordinary expenditures that the economy had to incur for Bangla Desh refugees, the fourteen day war and the compensatory expenditures for war damage and natural calamity. To these should be added the steady increase in non-development expenditures during the Plan period. A third factor has been the declining rate of private and domestic savings. Net domestic consumption has continuously risen and stands at over 91 percent of the GDP in 1971-72. This has meant in turn that over 55 percent of capital formation has been in the consumption industries and over 50 percent of that has been in luxury goods production. All these three forces can and must be immediately reversed. The public sector undertakings must be provided with appropriate managerial leadership to produce up to their capacity, the normalisation of conditions in the Country and sub-continent must be followed by re-development of resources for development, and a policy of drastically reduced administrative expenditures, consumption restraints, reduction in luxury goods licensing, price stability and fiscal renovation should lead to reducing consumption to the Plan target of 83.8 percent and increasing investments to 85 percent. One factor which can improve the savings/investment canvass is the merger of the major banks with some of the industrial establishments. Apart from LIC and Unit Trust mergers, the Central Bank will merge with TELCO, the Union Bank with Mahindra, the Canara Bank with Larsen and Toubro, the Bank of Maharashtra with Swastik Rubber, the Bank of India with Calico Mills, Indian Overseas Bank with Travancore Rayon. This trend should both add to the total investment volume and promote savings through the facilities offered to the share holders. A fourth factor is the slackening of the growth of exports. Exports rose from Rs. 1,359.9 crores in 1968-69 to Rs.1,535.2 crores in 1970-71 and imports fell from Rs. 3,265.5 crores to Rs. 3,160.4 crores during that period. In other words 1971 exports amounted to Rs. 1,577·1 crores and imports to Re. 1,842.8 crores. The deficit in trade balance increased from Rs. 75 crores in 1970 to Rs. 265.7 crores in 1971. The slackening in the rate of export growth was due to the major traditional exports like tea, jute, textiles, iron and steel etc. facing falling demand and prices

plus quota restrictions and competition from synthetics. Decline in our commercial crop production, particularly cotton was also a factor. Increasing production and investment demand both an increase in domestic savings and an increase in foreign exchange resources. With the decline in foreign aid, continuing improvement in export performance is as necessary a condition for growth as increased domestic savings. In fact there is a correlation between the rate of domestic savings and the rate of export growth for a semi-industrialised country like ours. On the one hand a growth in the saving ratios generates surpluses which can be exported, even when terms of trade deteriorate, as they have for India. (Incidentally some part of the deterioration is due to our inefficient high cost structure.—See Vol. II No. 4 of the Bulletin). On the other hand increasing exports produce high domestic savings through more efficient resource allocation, increased trade opportunities and the higher propensity to save of the export sector. Thus the expansion of the export sector is very closely tied in with our growth targets. The current export promotion drive thus assumes great importance as do the search for new markets, quality improvement of products, the winning of international turn key contracts as those in Malaysia, Indonesia, Kenya, Malawi and Tanzania and all measures to eliminate delays in the payment of cash assistance and in the refunds of draw back to exporters. In this connection the prospects of wheat exports adding to our export resources referred to in the last issue is unlikely to materialise, mainly because of the non-competitive price element of our wheat. The landed cost of American wheat in any Asian country is Rs. 62 per quintal, whereas our procurement price is Rs. 76 plus the transport of Rs. 4 per quintal. The traditional importers have a good harvest like India, and there are growing surpluses of Australian, U.S. and Argentinian wheat. If there is some wheat export from the country, it will be to the Soviet Union and Socialist Countries.

Nationalisation of General Insurance and Jute Trade : The Bill to nationalise General Insurance Companies, whose managements were taken over last year has been referred to a Joint Select Committee of Parliament. The Bill provides for general insurance to be run by four zonal corporations under the General Insurance Corporation of India with an authorised capital of Rs. 75 crores and subscribed capital of Rs. 5 crores. The shares of 55 Indian and 52 foreign insurance companies will be transferred to the Government for which a compensation of Rs. 33.03 crores is provided. All Indian companies will become subsidiaries of the Corporation and the merger of the different companies will be organised to improve efficiency and maintain competition between the zonal corporations. The nationalisation measure could make for economy and efficiency if the companies are helped in controlling their expenses, investing their funds and maintaining standards in the general insurance field. There are certain aspects, such as the criteria for settling the compensation for different companies and the nature and functions of the zonal corporation which can be examined and improved during the detailed examination in the Select Committee. The internal trade in raw jute has been nationalised. The Jute Corporation will now purchase six lakh bales of raw jute for the year and maintain the minimum support price in the interest of the grower. It will make its purchases through departmental purchase centres, cooperative societies and for two years through private agents, where the other agencies do not exist. Adequate warehouses have been established and the Corporation will also undertake buffer stock operation. This programme will help promote jute production and safeguard the income of the producers. The Corporation's programme is also related to the Government's decision to set up five modern jute mills in Bihar, Assam, Orissa, Tripura, and Andhra Pradesh.

Industrial Relations : 1971 was a good year in industrial relations with pronounced improvement, due to the war danger and the refugee care responsibilities and the speed with which industrial disputes were resolved without resorting to the Central Industrial Relations machinery. As a result 1971 lost 13.65 million man days against 20.56 millions in 1970, recorded 2,137 strikes and lockouts involving 12.3 lakh workers against 2,328 and 12.9 lakhs in 1970. The bulk of the man days lost was in West Bengal (where there was considerable improvement over the past) followed by Kerala, Maharashtra and Tamil Nadu. On the whole the Central sector continued to be more disturbed than the State sector. In this context the decision of the three Central trade unions, INTUC, HMS and AITUC to form a Council to provide a forum for discussion and agreement on issues, such as the assessment of the relative strength of the unions in an industry and the choice of common bargaining agent in a factory, is an important development towards improved industrial relations. The Industrial Relations Legislation now under consideration by the Union Government after discussion and broad agreement with the trade unions and the State Governments is another important contribution to lessening strife in industry. The legislation will set up an Industrial Relations Commission both at the Centre and the State, with the functions of adjudication of industrial disputes referred to them, certification of unions as sole bargaining agents and dealing with unfair practices. It is important that the basic principles that command general agreement should be elaborated and applied with the general consensus of the trade unions, the employers organisations and the States.

Housing : The All India Seminar on the Economics of Housing in National Development organised by the Institute for Techno-Economic Studies, Madras, at Ootacamund in May with the help of several union governments and State agencies has mapped a three point housing programme for the country which now commands general acceptance. First housing is an essential part of human resource development and is therefore part of the economic infrastructure of growth and is asset forming rather than a social overhead and a consumption item. It is employment generating. Second the priority in housing development is rural housing for both existing financial institutions and new financial institutions which can thus link the motivation of savings and house ownerships. An early result of this recommendation is the decision of the Chief ministers meeting in the NDC to make house sites available to all rural people by August 15, 1973. A further target is a house for every family within a period of 20 years. The States have been asked to submit rural housing programmes for Central financing. Tamil Nadu has submitted a Rs. 6 crore rural housing scheme in Thanjavur and similar schemes for other districts are being prepared. For the Thanjavur's scheme the State has been allotted Rs. 75.51 lakhs for the grant of developed house sites to 33,700 families which have not yet benefited from the Kudiyiruppu Act. Now the State Government has to rediscuss and convince the Centre that the 1.75 lakhs of people who have been given house sites in that district and the total of 3.25 lakh peasants who are in that position in the State must be accorded the same help. Third the seminar's proposal for the socialisation of urban and urbanisable lands as an important additional resource for urban housing has now caught on all over the country. The Union Government has asked State Governments to create " land banks " by acquisition of urbanisable land on the basis of well formulated master plans. The Central Housing and Urban development Corporation has allotted Rs. 6.25 crores to the Tamil Nadu Housing Board for four housing schemes, particularly for the low income people and similar programmes have been approved for Kerala, Uttar

Pradesh and Mysore. For slum improvement specifically, the Central Government is providing Rs. 20 crores to 11 cities—Calcutta, Bombay, Delhi, Madras, Hyderabad, Ahmedabad, Bangalore, Kanpur, Poona, Nagpur, and Lucknow—to supply slums with drinking water. storm water drains, baths, latrines, in tenements that the cities are constructing. Housing is now well on the way to becoming a major priority in the Fifth Plan fight against poverty and for growth.

Bangla Desh: The May India-Bangla Desh trade agreement provides for the export from Bangla Desh of Rs. 9 crores worth of fish. The phasing of this export should be so arranged that the needs of the people of Bangla Desh are first met and the fish exports become a part of normal mutually beneficial trade between the countries. Similarly the export of Bangla Desh jute to India should take into consideration the Bangla Desh Jute Mills Associations' programme for working 75 percent of its members loomage and operating at 65 percent of normal calculated on 2-1/2.3 shifts. The Bangla Desh Jute Export Trade Corporation that is to function from July 1st, can organise this exchange with India in the most effective manner. Other imports from Bangla Desh include newsprint, molasses, naphtha etc. In return the Indian credit of Rs. 24.10 crores to Bangla Desh is to be used for the rehabilitation of the railway system and supply of railway stores, telecommunications and power generation equipment (all totalling Rs. 10 crores), two ships, two Fokker aircraft, and five lakh tonnes of crude oil. The loan is repayable after a seven year grace period in 18 equal semi-annual instalments. West Bengal industries are to use their idle capacity and manpower in supplying the equipment part of the credit as well as that of the earlier Rs. 25 crores loan. This help to West Bengal industries depends on their management and raw materials shortage being speedily remedied. The Indo–Bangla Desh Power Board referred to in the last issue of the Bulletin is starting action with a large power plant in North Bengal which will meet the power needs of North Bengal, North Bihar and Bangla Desh.

International:

International Moentary Issues: The important monetary events were recorded in May. One was the massive devaluation of the Pakistan rupee by 55.5 percent. This was long in coming and has been the basis of advice from the World Bank and IMF for the country's further development. Pakistan has an export surplus of Rs. 165 crores in rice, tobacco, textiles etc. which used to be exported to Bangla Desh. The devaluation should help the country in finding new markets in West Asia and as conditions are normalised in the sub-continent with its natural trade partners, India and Bangala Desh. For the immediate present this devaluation must be accompanied by some reorientation of export oriented units to meet the new markets that will be developing in West Asia. A second consequence would be the slowing down of imports, particularly of luxury capital and consumer goods and the development of a closed economy, rather like India, with import substitution growing in the sheltered market, increasing investments in these areas and industrialisation. For this again there is need for reorganising its defence expenditures which now are an impossible burden to be borne out of the resources of what was the Western wing of the country. Finally the devaluation should help the Government in facing the large external debt of Rs. 1,700 crores and in negotiating the arrangements for rescheduling, similar to that being negotiated by India. With the normal relations

established in the sub-continent, the devaluation action will become one part of a larger programme for international capital and financial cooperation to work along with national effort to rehabilitate the economy.

The other event at the beginning of June (date line June 8 London) is the further rise in the free market price of gold, which reached $ 66.75 in London, Bonn and Vienna. Now the gap is not $ 12 as reported in the last issue of the Bulletin but more than double that at $ 31. At this point this is more than a passing speculative factor. Here the world demand for gold of 1,500 tons is up against the supply of 1,250 tons and the Smithsonian price of $ 35 per ounce is flying in the face of reality. The need to take long term action and the kind of action to be taken have been outlined in the last issue. First the reform called for must be decided by the world community and not simply by the rich man's club of 10. The developing countries must be in at the preplanning and planning stages, and for this the new group of 20 must be constituted now and its proposals submitted to the IMF annual meeting in September. Second the world community includes the Soviet Union and the Socialist countries and they must also be involved. This is more difficult because they are not members of the World Bank and IMP and their currency practices and parities are established on quite separate principles. But there are very practical reasons for ensuring that the Soviet Union participates in the next round of world monetary reform. It holds the second largest gold reserves in the world (after the U.S.) and is the largest gold producer (along with South Africa). No decisions made without the fullest participation of the Soviet Union is likely to stick. Further the Soviet and Socialst countrics have become a major element in international economic and trade relations arena. One means for integrating the Socialist countries with monetry discussions is to invite the Comecon (The Council for Mutual Economic Aid) to join the group of 20. According to the United Nations, the Socialist countries of Comecon had in 1971 a 6.7 growth of GNP (compared to 3 percent for OECD countries), less than 2 percent rise in prices (6.4 to 13 percent in the OECD area), with full employment conditions. Their trade among themselves is 66 percent of total trade. Third gold should cease to be a reserve asset in the international monetary situation and on this it should be possible to plan a short term and long term reform. This leads on to a consideration of SDRs and UNCTAD. These issues also should form the major subject of discussion and agreement at the non-aligned foreign ministers conference next August in George Town, Guyana.

UNCTAD III: UNCTAD III has ended. It now Joins the general United Nations family of agencies as being essentially a forum for discussion, not an arena, like the World Bank and IMP or the Common Market, for negotiation and decision. This is the general conclusion resulting from the performance of the Santiago session. The conference has made no contribution to the attainment of the goals of the Second Development Decade or for translating its strategy into trade—aid—monetary reform policy—as Vol. II No. 5 of the Bulletin had hopefully outlined. In the three major areas of UNCTAD action, trade, aid and monetary reform, the positions of the rich and poor countries have been once more clearly defined and there are other forums—GATT, IMF—where negotiations must be pursued and decisions made. In the trade area, there was not a single major decision that was supported by the group B (developed) countries. The resolution to create an international trade organisation to stimulate the development of the poor countries was adopted with the developed countries voting against it. A second

resolution to increase and stabilise the export earnings of the developing countries (from tea, bananas, tobacco, rubber, oil seeds, cotton, ores etc.) was adopted with the developed countries voting against it. They stated that no negotiations on trade, even in primary products, can take place anywhere except in GATT. A third resolution which emerged after lengthy negotiations as a compromise, recommending that the U.N. General Assembly call a plenipotentiary conference for negotiating a code of shipping referred to in the last issue of the Bulletin was adopted with the developed countries voting against it. Three positive decisions were made. A resolution asking the Socialist countries to fix a time-table for preferential access to imports from developing countries was adopted. The Trade and Development Board of UNCTAD was expanded and China elected to it. Bangla Desh was elected as a member of UNCTAD. A resolution was adopted to create third world trade centres in developed countries to spearhead a plan by developing countries to step up their exports of manufactures by 15 percent annually. But this recommendation was accompanied by so many reservations by U.S., U.K. and other rich countries that its execution reality remains to be seen. On the aid front, there was no commitment by the developed countries to meet the one percent GNP and 0.70 percent of official assistance pledge. In fact the U.K. led the developed countries in stating that this target could not be met and blamed the poor debt management of the developing countries for this situation. Two positive decisions in aid relate to the least developed 25 countries and the land locked countries. A 19 page report on special measures to help the world's 25 poorest countries to bridge the gap between them and the rest of the world, includes preferential financial aid, priority in access to markets, special consideration in commodity agreements, lower shipping rates, and increased technical assistance. Even on this decision, U.S. and others have expressed their opposition to the creation of a special fund for these countries. Similarly the special aid programme for land locked countries will include special technical assistance in road transport, railways and transit facilities, inland waterways, air transport and regional cooperation. In monetary reform, after days of intense negotiations, developed and developing countries reached a compromise on monetary reform, including the link between SDRs and development finance. Under this decision—perhaps the most important—a committee of 20 will be set up to make the views of the poorer countries known to the IMF Board of Directors on issues related to international monetary reform. The original plan to expand the group often to twenty had to be given up in the resolution. Even so, the U.S. expressed opposition to any reference to the link between monetary reform and development assistance and so the opportunity to link SDRs with development has been passed up. UNCTAD III's unfinished tasks of promoting international economic cooperation have now to be pursued in IMF, the Trade and Development Board and GATT. There is also a clear need for the developing countries to adopt more of a programme of self-reliance to make the Second Decade a success and so evolve more of a common ground both among themselves and with the developed countries.

Stockholm : The first United Nations Conference on the Human Environment opened in Stockholm on June 5th with 1,000 delegates representing 113 countries. The Soviet Union and the Socialist countries except China, Yugoslavia and Roumania were absent as a protest over the non-invitation to the German Democratic Republic. Also absent were Burma, Laos, Cambodia, Mali, Yemen, Burundi, Somalia and Saudi Arabia. As a conference of Governments, it dealt with action to conserve the environment addressed to Governments and intergovernmental organisations. The conference was

preceded by wide ranging preparations outlined in Vol. II No. 5 of the Bulletin. The basic documents were prepared by the preparatory committee and by an international advisory committee, the title of whose report is "Only One Earth". There is a common range of environmental problems highlighted by the conference that all countries and all people face. The highly developed countries face the problems of air and water pollution, waste disposal and resource depletion. The developing countries have their share of these problems and in addition more immediately face the poverty problems of endemic diseases, soil erosion, water contaminated by impurities, unplanned urbanisation etc. Nuclear radio active fall out and dumping of nuclear water into the sea touch all countries. The Indian studies on copper and uranium extraction through nuclear explosions centre among other matters on the effects of the residual fall out. The serious effect of the Chinese and French nuclear bomb explosions and underground explosions by the U.S. and U.S.S R. were widely debated in the conference. In this context, the U.S.-Soviet agreement to curb nuclear arms, race, which merely freeze the balance of terror at present levels, may be, it is hoped, the prelude to a growing gradual disarmament programme which can concentrate attention on the peaceful uses of nuclear energy and so promote also environmental balance and development. The Secretary-General, the Swedish and Indian Prime Ministers and the Chinese delegate emphasised the new ecological dangers opened up by the extensive use of chemical defoliants by the U.S. in Vietnam, Cambodia and Laos—which was described as ecocide. The Stockholm conference met against the general support of Governments, business leaders, trade unions and youth groups. The Indian delegation's contribution to the conference was made by Prime Minister and three Union Ministers. There was general agreement with the Indian thesis shared by all developing countries that it would be self defeating if in the name of environmental safety or pollution control curbs are placed on international trade or the growth of the developing world. The Indian Prime Minister warned against the ecological crisis adding to the burdens of weaker nations. For the poor countries economic development is not the cause but the cure of environmental inadequacies, leading to multidimensional improvement to the human environment. Above all modern warfare is the greatest destroyer of the human and national environment. Emphasis was also laid on training of environmental specialists in specific fields like ocean pollution, atmosphere, sound and health. Such training should be organised in both the developed and the developing countries. The Brazilian Minister speaking on behalf of the developing countries stated that the countries that have accumulated considerable wealth at the expense of so many diseconomies to the rest of the world should take main responsibility for corrective measures and for replacing what has been damaged.

While expressing general support for the Declaration on the Human Environment prepared by the preparatory committee, China's proposal for a working party to examine the draft and some nine amendments proposed by it and several others by India, Tanzania etc. and others were referred to the working group. There was general support for the special environment fund of $100 million for a five year period. The U.S. delegate pledged $40 millions and Japan $10 millions. The Iranian delegation offered a $100,000 prize for environmental work. U.K. proposed a global convention against dropping of noxious wastes in the oceans and offered to act as host to the conference which should be called soon for drafting the convention. The proposal was adopted with many objections and abstentions. The Canadian delegation invited the U.N. to hold the second environment conference in Canada in 1977, when the 5 year special fund will have

been depleted. The U.S. proposal for a 10 year ban on whaling came up against strong Japanese opposition. The conference approved the creation of an international data bank to assemble technical, social and economic information and promote exchanges of experiences in the environmental sector. On this the Japan—U.S. amendment for a committee of experts to study how the bank should be organised was passed by a two vote majority. Discussions in the conference on the effects on the environment of the forthcoming French nuclear tests and the supersonic planes, particularly the Concord resulted in a resolution, 48 for 2 against and 14 abstentions, calling on all countries to abandon plans for nuclear testing. A declaration of 24 scientists presented to the conference emphasised the need to link the environmental safeguard with the betterment of human living in under developed countries, the need to stop pursuit of growth in developed countries and the curbing of foreign industrial investment in developing countries - which both spoil their environment and export profits at a high rate. Bangla Desh raised the question of its environmental disruption caused by brutal military oppression and called for the housing of its 10 million returned refugees facing the monsoon. Japan and Senegal proposed a resolution under which the U.N. General Assembly will declare June 5 as the International Environment Day. An international housing fund, proposed by the Indian delegation was approved, with all the developed countries voting against or abstaining. Another resolution passed in the face of opposition by the developed countries was on compensation to be given by them when environmental hazards lead them to restrict trade.

In addition to the working party on the Declaration, the conference worked through three committees to deal with (a) educational, social and cultural aspects of the environment, (b) the relationship between economic development and the environment and (c) identification of polluting agents and means of dealing with them.

The major results of the conference were :

(a) A declaration on the Human Environment which provides international guidelines in the form of 25 principles for safeguarding the environment—China entered reservations on the reference to banning of nuclear tests and South Africa to the reference to Apartheid;

(b) A global net work of 110 specially equipped stations will watch for and warn about changes in the world's climate, its carbon dioxide content, the health of the ozone layer and will monitor regional trends in pollution;

(c) Surveys will be undertaken on the international standards for measuring and limitations of noise emissions to be applied particularly to motor vehicles and machinery;

(d) The Second Development Decade pledges on aid will not be affected by the preoccupation of the developed countries with their environmental problems, while no country should prejudice its neighbours' interests in the name of environment;

(e) In cooperation with FAO data on soil conservation, control and recycling of agricultural wastes and the study of the effects of pollutants on wild life and research to preserve present wild reserves will be compiled, exchanged and promoted;

(f) A 10 year moratorium was established on whaling for commercial purposes;

(g) An international convention against dumping noxious wastes into the sea is to be established;

(h) A basic international instrument will coordinate environmental operations in the future, comprising several bodies to safeguard the environment and curb pollution;

and (i) An environmental fund to finance environment programmes will start with a target of $100 millions.

Stockholm was a good start and is probably the maximum that an intergovernmental conference could achieve. The meeting itself was the most significant result. Like UNCTAD III, it was basically a dialogue between the rich and the poor countries. That dialogue must and will conform. Has the conference accepted the fact that the ecological crisis means that to survive we must live in accordance with ecological imperatives? The answer is no, because that would mean no more production for private gain, no more exploitation of the weaker nations by the strong and real and general disarmament. These are the real issues of the ecological crisis and it can be met and solved only when production is for public good, when the equality of all people is accepted, when all our resources are used for living in harmony with one another and with the environment. Stockholm was, it is hoped, the prolegomena to our living some day in accordance with ecological imperatives.

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Agricultural Development:

Food Grains and Cash Crops: The State's target for food grains production is 75 lakh tonnes for the year. The high yielding varieties programme for paddy will cover 51 lakh acres (the target for all crops is 66 lakh acres by 1974—See Vol. II No. 4 of the Bulletin) and the multiple cropping programme will increase beyond last year's 13 lakh acres. On these targets and plans, among the many causal factors for crop production increases, is the proper use of water. A recent study by the Union Agricultural Ministry (Directorate of Economics and Statistics) emphasises the importance of water management, particularly to meet the needs of high yielding varieties. In this State, the study covered 612 fields in Kuruvai and 211 in Thaladi during four years 1966-67 to 1969-70 in Thanjavur. The study showed that excess water damaged heavily 2.6 percent and moderately 6.9 percent of Kuruvai fields and 3.9 percent and 0.9 of Thaladi fields. Drought damaged heavily 15.6 percent and moderately 6.1 percent of Thaladi fields and 1.8 percent and 0.6 percent of Kuruvai. This average 5-10 percent damage to our paddy crop in our most fully irrigated district, Thanjavur can be avoided by a concentrated programme of water management. Such a programme has other payoffs. With the resulting increase in the per acre yield of rice, it has been computed that some four lakh hectares can be diverted from paddy production and also from the millets area to the growth of the much needed pulses, of which there is such a large deficit in the State. In the case of cumbu, the crash programme in 11 lakh acres of hybrid cumbu and hybrid cholam which is non-lodging and drought resistant to be sown at the outset of the monsoon are planned for this year. This large scale introduction of the dwarf, early maturing hybrid varieties sown in contiguous blocks, together with the declining demand

for millets in the State can release part of this year's target of 15 lakh acres to pulses. The pulses crash programme, started in 1970-71, covered 8.2 lakh acres last year. This target can be increased spectacularly to over 24 lakh acres by concentrating ona few short duration varieties of red gram, black gram and green gram. With proper plant protection and fertiliser use, the black soil tracts of Coimbatore, North Arcot, South Arcot and Ramanathapuram provide the areas where there can be a rapid expansion. Here again the Union Ministry study referred to earlier brings out the importance of proper plant protection in the State. In Thanjavur the damage from plant diseases and insects ranges from heavy 4.2 percent to a moderate 1.8 percent of Kuruvai fields to 4.4 percent and 3.4 percent of Thaladi fields. Protective measures recommended are treating the seeds with chemicals like ceresan and streptocycline and spraying and dusting the crops with endrin, BHC, copper chloride etc. With the discontinaunce of aerial spraying (see last issue of the Bulletin) this programme becomes important. For pulses and millets, the wet dusting technique involving a small addition to the power duster enables the water to come out in a finely dusted form and mixed with the dust forms a regular suspension deposited on the plant. Another crop which needs to be expanded is cotton which was grown over 7.75 lakh acres last year yielding 3.45 lakh bales (and not 4.5 lakhs as forecast in Vol. II No. 5 of the Bulletin). This is another illustration of our poor forecasting service. It has been suggested that the start made in Thanjavur in cotton growing can, through some diversion of the Cauvery waters, extend the crop area in Thanjavur and Ramanathapuram by one lakh acres and a further 1.2 lakh acres in the rainfed areas of the State. The same computation suggests that groundnut cultivation can be increased from the present one lakh hectares to 4 lakh hectares of irrigated land and to an ultimate target of 14 lakh hectares of dry cultivation. Irrigated groundnut offers scope for fertiliser application and protection against seed borne and soil borne diseases. There are also disease resistant strains which can and should be rapidly multiplied—TMV-10, TMV-7, POL-I, TG-1, TG-3 (See Vol. II No. 5 of the Bulletin). As groundnut is a mixed crop which can be grown with cotton and redgram, and interspaced with cocoanut and tapioca, it will also promote diversified farming. Another oil seed, sun flower has just begun in the State under both wet and dry farming. A crash programme for the south aims at bringing 3.5 lakhs hectares under sun flower cultivation by 1973-74. Of this, this State can contribute a minimum of 1 lakh hectares under dry and 50,000 hectares under irrigated conditions. It is a short duration crop which can be grown throughout the year. It responds well to plant nutrients and yields from 1.098 kgs. to 1,626 kgs. under dry farming and 1,640 kgs. to 2,403 kgs. under irrigation conditions.

Water : In addition to the drought conditions reported in the last issue of the Bulletin, Salem, Dharmapuri, South Arcot and Ramanathapuram report drought conditions in certain pockets. Water scarcity in these pockets must be met by some adjustments on loan repayments and an intensive ground water programme. From this point of view it is a matter of regret that some slow down is reported in the execution of the Rs. 26 crores World Bank project, due to restrictions on the spacing of minor irrigation facilities. There is here a problem. Ground water use must be scientifically regulated as otherwise the farming community will have no water in a few years. But the decision on spacing whether it be 1,500 feet as it was at the start or 500 feet as it is today, must be based on ground water studies. The project which should help 26,000 farmers by the end of 1973 through Rs. 150 lakhs loans was not even able to disburse Rs. 30 lakhs. One immediate solution would be, as suggested in the case of the Tirumangalam area of the

Madurai District in the last issue of the Bulletin, for the farmers to form irrigation cooperatives and joint lift irrigation societies in order to obtain the credit, conform to the specifications and construct the wells. Kuruvai cultivation has begun in Thanjavur District at the end of May, with ground water resources, some six million gallons per day being used in the 5 lakh acres. Plans are under way with this combined use of ground and surface water (from the monsoon) to turn the two crop economy into a three crop one. This is one area in the State where systematic approach to ground water has enabled the district to turn to this resource, as surface water is now fully harnessed. The Central Ground Water Board is at work for the coordinated and efficient development of ground water resources in different parts of the Country. Of the 3,000 million acre feet from the Country' annual rainfall, 650 million acre feet seep into the soil, of which 300 million acre feet percolates to the sub soil and becomes ground water. It is necessary that the Central Board's overall work be suppoıted by a State Water Board which could well be located in the State Water and Drainage Board, as proposed in the last issue and in Vol. I No. 6 of the Bulletin. This ground water programme is part of a wider effort referred to in connection with the earlier analysis on land ceiling. The ground water movement is a people's movement, resulting from the initiative and the managerial role played by millions of small and the few large farmers. Wells and tube wells between them account for 33.77 per cent of the net area irrigated. If this concept of net area irrigated is taken into account the efficiency with which water is used and its productivity increased, ground water is the most important source of irrigation in the State and the Country. It also has the advantage, because of the quality and flexibility of its service, [that it is popular with the farmer and its extension should be assured through continuing loan finances to him. The major surface water from the Mettur reservoir is not to be available for Kuruvai cultivation till July because of the low level and the works under way. Further the government has agreed to Mysoer impounding 3 T.M.C. feet water from Krishnarajasagar to save the 40,000 acres cane crop. In this situation, the Rs. 120 lakhs now available in the ground water project should be disbursed within the next 12 months.

Vegetable farming : The Nilgiris vegetable development project (See Vol. II No. 4 of the Bulletin) and the Tamil Nadu Vegetable Marketing project started in Madras city are being integrated. The Nilgiris project has eradicated the potato virus, the golden nematode, which threatened 4,000 acres of potato fields, has promoted a varied vegetable growing programme, for which a district vegetable growers society in the cooperative sector is being formed, has identified ginger and barley as cash crops that are to be grown on a large scale in Gudulur (and from which oleorisin and malt are to be extracted) and has evolved a high yielding paddy variety suited to the area. The success of the production programme has underlined the importance of organised marketing of its vegetable products. The three year old Tamil Nadu vegetable marketing project (TNVM) has the double objective of encouraging kitchen gardening in Madras city and supplying vegetables to consumers at reduced prices. The kitchen garden programme is progressing satisfactorily and a vegetable garden is becoming a part of every household in the city. The distribution programme however has run into difficulties due to limited resources, bureaucratic procedures and growing opposition from private traders. The regular supply and sale of Nilgiris vegetables through this project will revitalise it. The market demand of 10 tonnes of Nilgiris vegetables in the city will help the Nilgiris diversification programme away from its past monocrop (Potato) character, and help to revive and strengthen the TNVM project in the City. With the improvement of transport and cold storage facilities, the integration of the two projects will be of further benefit to both.

Prices: Oil seeds and oil prices are declining, groundnut oil is selling at Rs. 330 per quintal (against Rs. 385 a year ago) and similar declines are noted in coconut and gingelly oil due to high yields of the groundnut and other oil seed crops. The Agricultural Prices Commission has recommended a Rs. 2 higher minimum support price for paddy at Rs. 48 per quintal for this year, because of the four percent rise in the price of agriculture inputs (fertilisers, agricultural labour etc.) This of course would not compensate rice consumers who are subsidising wheat consumers who pay a low subsidised price which does not, as in the case of the rice price, include the cost of distribution and margins. The agreement between the government, cane growers and sugar mills in the State on cane prices is to pay the growers Rs. 80 per tonne for recovery upto 9.4 percent and an extra 6 6 paise per quintal for every 0.1 percent of additional recovery, with a minimum price of Rs. 85 per tonne for all cane growers. These rates include tranport charges and the payments to the growers are to be made within the 30 days from the delivery. This important agreement clears the ground on two points. First it makes clear that the 16 mills in the State and others in the South are paying the same or in some cases higher prices than the Northern mills, thus removing any basis for the latter's suggestion that the Southern mills prices should be regulated statutorily, while the Northern mills would operate in the free market. But more important, the agreement makes the prospects for increased cane production in the State possible. The State mills have expanded their capacity by 10 percent and their last year's production of 3.3 lakhs tonnes might increase to 3.75 lakh tonnes this year. There are thus general conditions established for an increased production of cane in the State. The use of full capacity of the mills will require growing cane over an additional 65,000 hectares, which can be found by replacing irrigated cereals with cane around the factories in the State, including the three new mills licensed at Vellore, Pudukottai and Coimbatore.

Dairy Farming: The Tamil Nadu Dairy Development Corporation (TNDDC) under the All India Operation Food project has been set up for developing dairy farming in the State. From the consumption point of view, there is a serious problem which the Fifth Plan must remedy. Studies in Madras city have shown that of the 4.5 lakhs litres of milk consumed per day, about 17 percent of the population who are the upper income group consume the largest per capita milk, 41 percent of the city population consume just what is needed, 19 percent is attempting to increase its per capita consumption, and the last 17 percent who are the poorest do not purchase any milk. The TNDDC has been allocated by the Indian Dairy Corporation Rs. 8.87 crores out of a total of Rs. 95.40 crores from the sale of public sector milk projects based on 1.26 lakh tonnes of skimmed milk and 42,000 tonnes of butter gifted by the World Food Programme. TNDDC will operate in the Kancheepuram/Ambur region, Coimbatore/Erode/Salem area, Tiruchirapalli/Thanjavur belt, Madurai Nilgiris and the Madhavaram colony. Its plan of action is to: (a) increase daily production to 3 lakh litres through encouraging all sections of the rural population, including small and marginal farmers and landless labourers to intensify dairy farming and organise distribution at reasonable prices; (b) provide inputs to 2.5 lakh milch cattle in the form of veterinary care, fodder cultivation and, breeding facilities; (c) work through a net work of veterinarians and dairy assistants; (d) run demonstration cum production centres for calf rearing and fodder cultivation; (e) organise associations of producers and consumers and improve existing facilities for processing and distribution of milk and set up new facilities. At present the dairy units in the State handle 1.36 lakh litres per day, including 50,000 litres at Madhavaram. This will be

immediately increased and a second unit for 2 lakh litres daily processing will be set up in Madras and similar facilities in the other areas mentioned. The Madhavaram location, as the central farm, will be shifted because of its deficiency in essential minerals; (f) establish a central Semen Bank to supply frozen semen to all centres; (g) establish a 50,000 litres skim milk plant to handle any surplus output. This important project will be reviewed at a State conference of cooperators, private dairy men and economists to plan for its full implementation and further expansion in the Fifth and Sixth Plans.

Fish Farming: By the end of the Fourth Plan, the States's output of marine fish will increase from the current two lakh tonnes to three lakh tonnes which is only a beginning of the expansion planned for the Fifth Plan. Survey stations at Rameswaram, Cuddalore, Madras and a new one to be established at Kanyakumari have explored the inshore areas up to a limit of 20 fathoms and located fishing grounds for mechanised boats for bottom fish and prawns and for trawlers for silver bellies. The next stage is deep sea fishing surveys and pearl fishing last conducted in 1961. To step up fish farming in the State, the government is constructing fishing harbours, promoting boat building and increasing and improving refreigeration facilities. Fish harbours are being constructed or expanded at Tuticorin, Cuddalore and Madras. They need to be built all along the coast line. Boat building is being held up because of the scarcity of timber (the forestry perspective plan does not envisage timber availability before the end of the Sixth Plan) and ferro-cement is being used for building boats. In addition to the 21 ice plants producing 94 tonnes of ice per day, and 27 cold storage plants with a capacity of 150 tonnes, 10 ice plants, the Tuticorin freezing plant and freeze store, a 30 tonne ice plant in Madras and a 2 tonne plant at Arumbakkam are being established. In inland fisheries, existing fish farms will benefit from the success of the hormone injected Chinese carp developed at the Amravathi fish farm. It can now be grown to a large size under natural conditions and being non-competitive and non-carnivorous, living off water weeds, will also be useful in clearing our ponds, lakes, reservoirs and canals.

Coimbatore Agriculturalists Agitation: The Coimbatore District Agriculturalists Association has put forward 12 demands, for the withdrawal of increased power tariff for agriculture, remission of agricultural loans and stay of attachment proceedings against defaulters, abolishing the new levied agricultural income tax, fixing of minimum prices for their products, withdrawal of increased taxes on pumpsets and fertilisers, declaring non-irrigation areas as drought areas etc. and on this basis have launched a picketing and non-payment agitation campaign. Some 1,500 agriculturalists were arrested in this campaign, including the officers of the association. The demands with regard to electricity charges which have been established after careful expert and feasibility studies, the agricultural income tax which is a small step in a comprehensive programme being planned for all States and the taxes on fertilisers etc. which are central levies are difficult to negotiate on a global basis. If there are hardship cases and areas, such as the low level of well water in the Coimbatore district requiring greater use of power or problems resulting from drought conditions in particular pockets, these can be negotiated and dealt with. It is important that the problems be dealt with at a technical level and from the State and All India points of view.

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Industrial Development :

Salem Steel : Following the decision of the Union Cabinet on the costing, product mix, technology and raw material for the Salem Steel Plant reported in the last issue of the Bulletin, two follow up actions have been taken in execution of the project. The first relates to technology and equipment and the second to the construction programme. The policy decision to rely for equipment for the plant on production from the Heavy Engineering Corporation, despite the heavy production strains to it stands as reported in Vol. II No. 4 of the Bulletin. There are however two related problems here. First the technology used in Salem Steel must be up to date and sophisticated. The exploratory team headed by the Secretary of the Union steel ministry is touring six countries, including France, Soviet Union, Germany, U.K. and U.S. scouting for new designs and technologies. The usual business practice is that designs and technologies are not made available without purchase of the related equipment. This means that we will have to import some sophisticated equipment. Second he HEC production schedule which has been carefully and precisely timed so as to install all its equipment in the plant by 1977-78, has had to freeze the technology at the existing levels in order to keep this time table. But steel production is one field in which technology and design are changing rapidly and so the cruel choice is either to install outdated HEC equipment or to further lengthen the time schedule of HEC production, so that it can negotiate for and use the latest know how. The path of wisdom seems to be to allow for some imported equipment of the sophisticated kind, while relying on HEC for the rest. Already Japan has presented proposals for provision of know how and equipment for Salem Steel as a means of countering the slackening in its steel industry. The other development is the progress made in land acquisition, clearance etc. The 1,300 acres which have been acquired are to be cleared in 18 months by the Hindustan Steel Works Construction Limited with its earth moving machinery. Also proposals for water supply during construction and maintenance, power supply during both construction and operation by the Tamil Nadu Electricity Board and the railway survey for the yard and sidings have been completed.

Neyveli : The Subramanian Committee has now reported on the ills and means of rehabilitating the Neyveli Lignite Corporation. (See Vol. II Nos. 1, 2 and 4 of the Bulletin). Its eight recommendations constitute a programme of action which will enable Neyveli meet its annual production targets of 6 million tonnes of lignite, 600 megawatts of power, 1.52 lakh tonnes of urea and 3.63 lakh tonnes of briquettes. The first recommendation is to reduce the loss in lignite mining through better productivity and utilization of equipment and cut down in non-programme administrative costs. Second there should be efficient utilization of mining equipment and particularly preventive maintenance, to avoid frequent break downs and loss of production along with complete integration of routine maintenance and operating functions in each branch of the mines. Third, the need for timely replacement of equipment and the action initiated for such replacement should be recognised. The economic life of equipment should be assessed in terms of working hours and not of years and should be fixed in advance for each piece of equipment. Fourth, the request for purchase of Rs. 18 crores of additional mining equipment to mine 6 million tonnes a year which is based on the West German expert study should be the subject of a complete techno-economic study for the production of 6.5 million tonnes, indicating the additional investment that that target requires, the cost of mining lignite and the impact on over allied activities. Fifth, on cheap thermal power from lignite, the

present assumption of Rs. 18 per tonne should be scrapped and a fair and equitable price established so that N.L.C. may earn a marginal return on its investment. At the 4.5 million tonnes stage, the cost of lignite will be about Rs. 28 per tonne, allowing for the additional equipment investmentment of Rs. 8.9 crores. Even at this price NLC will not break even and will incur heavy losses even if the power rate is increased by two paise per KWH. Sixth, physical and financial standards and norm for each major activity should be established and actual performance be evaluated periodically against these norms and reasons for short falls established and timely remedial action taken. Seventh, as the open cast mining techniques adopted at Neyveli with the bucket wheel excavators is the best suited for the project, there should be standardisation of bucket wheel excavators at 1,000 litres for over burden and 500 litres for lignite, and immediate production of this equipment at HEC Ranchi or MAMC Durgapur. Finally the most important need is dedicated and loyal service at the senior levels, which alone will motivate supervisory personnel and workers. These eight recommendations provide for an integrated operation of this important complex and should be approved and implemented without delay. The original targets are realisable and the basis for their realisation has now been provided. There need no longer be doubts about the feasibility of the triple objectives of this plant.

Textiles : The textile industry and its associates in the State face many problems. The Tamil Nadu Textile Corporation has reopened three of the seven closed mills—Somasundara, Coimbatore Spinning and Weaving and Balaram Varma at Shencottah. Four more—Pankaja, Palamalai Ranganathar, Kaleeswarar and Saradha—should be reopened in three months as otherwise the workers would be entitled to unemployment relief. The reopened mills face the problem of the name of the brand of their products in order to remove the association with the unhappy past. Their new brands are now being widely accepted. There are a whole array of other problems that they face with regard to their past debts. The Telephone and Electricity departments insist on being paid for the past debts before restoring service. The position of the depositors in these institutions is serious in light of moratorium declared by the TMTC. Many of them are small traders, pensioners, cotton suppliers belonging to the middle and lower middle classes. Their life savings and retirement benefits have now been lost. Some of the closed mills reopened by private industrialists have met past debts and the TNTC should do the same at an early date. Until such time, the Union Government's income and wealth tax departments should cease adding insult to injury by treating these frozen assets as taxable. Another problem exercising the industry in this State is the Union Government's decision to reduce cash incentives for mill textile exports from April 1. There is reason for this reduction in the steep fall in the price of cotton by around Rs 200 to 300. As 19 percent of the country's exports of cotton cloth and 76.6 of cotten yarn are from this region, the mill owners in the State will be affected by the decision. In place of post dating the reduction to September the mills may, as a compensation, be allowed to hold increased cotton stocks for this season to take advantage of lowered prices, which should also improve the competitive nature of our cloth and yarn.

Leather Exports : Leather exports from the State have four features. First, raw goat skin exports—following cessation of other hides and skins since 1950—will stop at the end of this year. Second, in the last two years leather exports have quadrupled to Rs. 100 crores due to higher unit prices and semi-finished goat skins export. Third only 10 percent of the exports are in finished leather and leather goods—foot wear (Rs. 8

crores), finished leather (Rs. 2 crores), and leather goods (Re. 1 crore). There is however increasing demand for sophisticated goods, particularly in U.S. and Canada ladies summer and spring wear. There are two mechanised foot wear units in the State catering to this market. Fourth, the acceptance of Indian finished leather in West Europe has greatly improved with the air freighting of this leather. Rs. 1 lakh worth of leather is sent every day by plane from Madras to Europe. European buyers pay a slightly higher price for the air freighted leather goods and save on interest and insurance charges. This avenue of exports is expanding rapidly with direct lines being established between Madras and Rome, Madras and Paris, Madras and New York and Madras and Tokyo, in place of London acting as the entrepot centre for Indian leather. By the end of the Fifth Plan, the exports will amount to Rs. 175 cores.

Cement : The State which is one of the major producers of cement is experiencing the curious situation of increasing production and increasing price both within the State and in its markets in the North and East of the Country. Production in the last quarter was 16.04 lakh tonnes against 14.88 lakh tonnes in the previous quarter. And yet in Madras city cement price was raised by two rupees per bag, and is selling at Rs. 18 per bag in Bombay, Bangalore and Kerala and at even higher prices in U.P., Bihar and Assam. The major reason is the non-availability of railway wagons. There is some dislocation in the rail movement to Kerala due to landslides in the Ghat section between Tamil Nadu and Kerala. But the major reason is the poor management of railway wagon movements and the turn around of wagons. As recently as the end of April the railway board announced that wagon shortage that had bedevilled rail transport is now over. And yet despite the railways refusing indents when wagons are not available in order not to show a large backlog of demand, the wagon shortage is of the order of 40 to 60 percent. The movement of cement by road to places like Madras within the State is costlier and has led to the price rise. Construction activity has picked up all over the country and given its employment potential, the railway wagon bottleneck whichis an assay in mismanagement is inexcusable. The situation is becoming worse with rising demand and increasing production from expanded capacity of the plants. Wagon supply is also affecting the transport of salt and soda ash where again the increasing demand cannot be met by the local stock without transported supplies. All States face a serious obstacle to their industrial and agricultural development due to the railways. A rational systems management of our wagon traffic is now urgently called for.

Handloom and small Industry : Further to the international problem of State handloom industry analysed in the last issue of the Bulletin, in the period between April 1971 and January 1972 exports of bleeding Madras, Madras handkerchiefs, saries and ready made garments have increased to the non-traditional markets of Europe, United States United Kingdom and Japan. Cotton exports to U.K. alone have registered a threefold increase. For this year 8 million square yards of handloom are being exported to U.K. after ratification of the agreement. One problem faced by the industry is that though cotton prices have declined, yarn prices, particularly for the finer counts have risen and in view of the fact that mills do not supply good quality yarn to the handloom industry, their price rise and scarcity of yarn will hit the export market which is increasing for finer counts products. Thus for instance the high yarn prices, non-availability of certain counts of yarn, and the 4.5 percent reduction in the export cash incentives are holding up delivery of the Japanese orders for over Rs. 25 lakhs and that for fresh

orders. In addition to the air freight subsidy for cotton handloom exports to Europe, there is need for yarn availability to be increased and prices to be regulated to take advantage of the growing demand in non-traditional markets. The high priced handloom silk which is 40 percent costlier than Hongkong or Indonesian products also faces losing its export markets. Prices here also must be brought down.

As forecast in Vol. II No. 5 of the Bulletin, the Rs. 10 crores cooperative paper factory using Polichikeerai grown over 3,000 acres is to be established in Tiruchirapalli district on the banks of the Cauvery. The factory will be run by the producers and its capacity will be 100 tonnes a day. The Government has also sanctioned Rs. 15 lakhs for an industrial estate at Tiruchirapalli in which 29 sheds with all facilities will be available for small entrepreneure to manufacture ancillaries for the Heavy Boiler Plant at Tiruchy (See Vol. II Nos. 1 and 4). The agreement with the Plant to purchase all the ancillaries manufactured in the estate provides the existing 10 units and the new 29 units with an assured market. The estate is to expand over an area of 100 acres with a target of 100 service cum manufacturing sheds. This brings to 50 the number of industrial estates in the State. Again as forecast, SIPCOT has sanctioned Rs. 24 lakhs as term loans for the two pharmaceutical plants at Ambattur to manufacture 1,500 tonnes of plasticisers and package bulk pencillin and streptomycin and two plants in the Ramanathapuram district to fabricate automobile aluminium diecastings and steel forgings. The soft loans provide for a two year grace period and seven years for repayment for the Ambattur plant and 4 and 8 years for those in Ramanathapuram.

The small match producing units in the cottage sector at Sivakasi, Sattur, Gudiyattam and Madras accounting for over 40 percent of the country's match production, have been visited by the Central Excise Review Committee. The industry has been badly hit by the self assessment scheme, through the 10-35 percent evasion of the excise duty. The number of units have increased but there is no evidence of increased production because of the duty evasion. The cooperative factories are in a bad shape and should be quickly reorganised to a more efficient level or closed down. Small units producing less than 100 million matches per year were facing serious competition from those evading the duty and underselling them. Matches are sold as loose sticks, quality has declined and the industry has developed linkages with financing and marketing agents and in paying the lowest level of wages in the State. The conclusion and the recommendations of the committee are now awaited to help put this small cottage industry back on its feet and enable it to function and make good on its employment potential.

Private Sector : The annual report of Tube Investments records a 6 percent increased turnover in 1971 over 1970 and an increase in profits before tax and gratuity payments (Rs. 5.28 lakhs). The National Award for export performance in 1968-69 was awarded to the unit, which has made a case to the government for an increase in price due to increased costs. The company also reports adopting various cost saving devices, along with improved models of BSA and a ladies cycle. The production and offtake of saddles increased by 30 percent, with increases in mill production, the installation of a third tube mill, a 60 percent increase in the metals section and increases in industrial and cycle chains and scooter lamps. Tube production declined by 12 percent due to lack of raw material resulting from the breakdown of Rourkela. Managment and production procedures are being further rationalised and modernised. 1971 was a moderately good year for TI.

Kothari Madras, the result of the merger of 3 plantations and 2 textile companies (See Vol. II No.5) reports plans for: (a) a Rs. 0.5-1 crore plant for electronic manufacture, (b) a Rs. 2 crore plant for producing 3 lakh per annum of automobile batteries, industrial train lighting cells and nickel cadmium light with German batteries, (c) a wrist watch factory in the State at a cost of Rs. 2 crores, (d) a modernisation programme of the textile mills and (e) the offer of equity shares in Kothari Sugar to help meet in part the Rs. 3.6 crores new sugar factory to be set up in Mysore. This wide ranging diversification and modernisation programme moves forward the State's industrialisation. Sakthi Sugar reports expansion plans, increasing its crushing capacity to 2,500 tonnes per day (a doubling from the initial levels) and a 2 million gallon distillery costing Rs. 75 lakhs. This plant's finance will be raised by loans from Tamil Nadu Industrial Investment Corporation (Rs. 10 lakhs), Indnstrial Finance Corporation (Rs. 37 lakhs) and from equity and preference shares (Rs. 21 lakhs). The Arooram Sugar factory's 7,000 acres of lands under sugarcane are to be taken over by the State Government under the ceiling legislation which does not grant exemption to sugarcane lands. A Corporation is being formed to manage the lands. The sugar mills generally in the State are hoping for policy from the Union and State Governments which can correct past errors flowing from failure to create buffer stocks, the policy of complete decontrol and the changing decisions on cane and sugar prices. The State and its mills are all set to contribute to the 50 lakh tonne output which should be the target to meet the internal and export demand for sugar. The disturbed industrial relations in Ashok Leyland which led to the strike and lockout (and that at the Avadi Heavy Vehicles Factory) with its wide ranging implications for production in the State and the Country have been the subject of useful give and take by the trade unions and managements under the advice of the State Government.

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Education, Science and Health

Education Development and Reform Movement : The Chairman of the Task Force has prepared the Draft Perspective Plan for Education, Science and Technology and circulated it to the members of the Task Force for discussion and finalisation in mid-July. The State SSLC examination was taken by 1,97,767 students, of whom 60 percent, 1,19,122 were successful. Out of the first ten successful ranks, not one is from the schools of Madras city proper. Two students are ranked eighth from two Perambur schools. Schools in Thanjavur, Tiruchirapalli and Palayamcottai have trained their students well for the examination and have secured the top ranks. In announcing the results, the statement declared that " 1,97.769 (students) appeared for all subjects to qualify themselves for University courses of study. " This raises the two questions of the purpose of secondary education in the State. Is it to import skills and learning for working one's way through life or is it simply a preparatory stage for further (higher) eduction? If it is the latter, how does the graduation of 1.2 lakh students relate to the less than 80,000 places available in the pre-university classes in the State? What happens to the 33 percent who will be left out and who have been trained simply to go on to PUC? In the neighbouring State of Mysore the special officer for school education has recommended to the government that (a) the SSLC examination should become an optional examination and each school should conduct its own examination before issuing a school leaving certificate, (b) the question papers should have essay, short answer and objective type

questions in the ratio of 25:50:25; and (c) no new colleges need be started in the State for the next four or five years. The Minister of Education in this State also has in a series of statements, called for a radical reform in the present examination system by replacing it with a continuous process of evaluation closely related to objective education. As long as the SSLC examinations are held, he points out, they should result in distinguishing between students who will enter employment and/or professional training and those who qualify for university studies. He also recommends that the PUC should be replaced by a two year intermediate programme. The Minister has further announced the starting of ten colleges this year, including a commerce college in Kodambakkam by the Jain community and four Government colleges. This expansion of arts and science colleges is in direct contrast to restricted medical, engineering, and agricultural college admissions and the possible suspension of admission to teacher training schools this year. The Minister points out that 18,500 secondary grade teachers have to be found employment against 6,000 vacancies and so admitting students to the teacher training schools is adding to teacher unemployment. But the unemployment tragedy is even worse for the arts and science college graduates. On the assumption that the ten additional colleges, graduate 2,000 BA. and B.Scs. every year, the State will have 10,000 graduates unemployed every year instead of the current 8,000. In connection with examination reform movement, the IAS examination is likely to take the lead. The present written exam with its emphasis on cramming and writing of long answers is like the University examination a test of memory and capacity of anticipating questions. So it has been decided to scrap the present tests — which are described as outmoded and substitute multiple questions requiring brief answers. This will also solve the lanugage problem, as brief replies of substance rather than language competence become important. Similarly the viva is being reformed to concentrate on psychological tests and two or three group tests such as the ones given to those applying for studies at the Vellore Medical College. It way be noted that the civil service bodies are setting the pace for academic institutions. It may be too late for the academic institutions to wake up. Under a June 3 UNI Agartala headline a tragic addition to human rights is noted thus: "A section of B. A. part one Honours students boycotted their examinations as they were denied free copying rights and facilities in the examination hall of a local college. Last night a professor of a local college was stabbed at his residence for the same reason. In another city the teachers have refused to act as invigilators and have asked the police to supervise the exams." The primary school teachers' agitation in the State raises important questions of educational reform. The teachers are on firm ground in demanding an improvement of their service conditions, tenure, prompt payment of salary, not being subject to transfers by ad hoc panchayat union committees, and not being diverted to act as family planning agents. But the teachers are on weak grounds when defining their function in what they call academic terms. The school is part of society, it must educate for its neighbourhood, work experience is a part of teaching and learning experience. The teacher is not limited to his class room, text books, examinations, etc. Such restriction is part of the failure of the present system. From this point of view, the midday meal programme with all its defects and problems, work in the farm and cottage industry, education in health and hygiene and above all education in school and out of school are a part of the teaching functions of our elementary school teachers. This is part of the reform movement being considered by the State Planning Commission, the Union Planning Commission and the Union Ministry outlined in the last issue of the Bulletin.

To attain the quantitative and qualitative educational objectives by 1980, the Union Minister of Education proposes what he describes as unorthodox and revolutiouary methods. Pointing to the lack of a mass base as the crucial weakness of the present system he proposes that universal education system should be intimately related to the local environment and national needs, work experience be integrated experience with the school and a comprehensive programme of out of school education, including adult education, continuing education, further education, functional literacy, rural and mobile libraries be organised. In this context, a small step has been taken by this State in its decion to increase the library cess from 3 paise to 5 paise from April 1. The cess which is a surcharge on the property tax has been unchanged since before independence and the result has been that the local library authorities have less than 10 percent of the library budget for purchase of books. Now the LLA will have 5 paise from the cess and a matching 5 paise from the Government. The next stage is to double this cess. Prices have increased sixfold since it was started at 3 paise. A powerful school and out of school educational technology is T.V. – in which India is the only developing country, in Asia, Africa, or Latin America that is yet to develop this tool. Now the time is approaching for T.V. in Tamil Nadu. The Government Estate on Mount Road for the transmitting centre has been allocated, and the chief engineer has been appointed for the Madras T.V. Centre. Our Delhi pilot project has shown that T.V. is a powerful farm and school programme. What is needed now for the Madras centre is (a) the will and decision of the Government to forge ahead with the completion of the T.V. centre, (b) preparation of out of school, health, family planning, agricultural and cultural programmes for artists, educators, script writers and all the specialists, which requires a lead time of at least three years, and (c) the training of programmes for artists, educators and all the specialists, which requires a lead time of two years. Like the radio, T.V. can be developed to be beamed to every part of the State, as the signals can be picked up and relayed everywhere. So this preparatory work in the State must start now and for this the development of education should establish a T,V. unit to prepare the programme and train the personnel, in cooperation with the Union Ministries.

The movement for setting up autonomous colleges is gaining ground, with the decision of another of our neighbouring States, Andhra Pradesh, to make the Nizam's college and Women's college in the Telingana Region and one in Coastal Andhra and one in Rayaleasma autonomous colleges. As the Minister of Education of this State and a Vice-Chancellor in Andhra Pradesh have remarked higher education is in a bad way in the State and Country, not due to lack of financial resources but because of the over crowding of our colleges, teachers losing their sense of dedication and students ceasing their interest in studies, The college and University management is coming increasingly under non-academic influences. As a means of improving the quality of higher education, the first action needed is to stop this over crowding through a programme of selective admissions, starting new colleges only in new areas such as sociology, psychology, linguistics, business management etc. Autonomous colleges is another important means, under which a few selected colleges will have the freedom to establish their standards of admission, their teacher student ratio, choice of courses and examination. At present talented students are lost and wasted and so this system ol autonomous colleges will identify and foster a pool of talent for the State and Country. Similar residentia autonomous schools will also have to be developed to spot and nurture talents, parti-

cularly those from the rural areas. Talent of course is no monopoly of any class or community. Attention is also called in recent discussions to the need to reform legal education. Law colleges today according to our legal experts are producing legal technicians, with their exaggerated emphasis on the text and not content of law' on the details of law and not on its basic principles, on the vocational aspect and not on the science and principles of law. The reform of legal education should aim at producing a a new race of lawyers, who realise the importance of stability and change, and who have the courage to criticse what is accepted and construct what is necessary for the new situations facing the State and the Country.

Technical Education : New developments are taking place in three areas, technical high schools, commercial education and polytechnic and engineering education in the State with a strength of 840 students, admit students after the 8th standard for a three year course divided into general subjects covering Tamil, English, History and Geography, Mathematics, Physics and Chemistry and technical subjects covering General Engineering, Drawing and Workshop Practice. It has proved very successful, allowing each graduate three choices—to return to the general academic stream, PUC, which he finds easy to excel in, or enter a polytechnic where he is welcomed because of his engineering background or enter the employment market where the factories find him an efficient foreman or chargeman. Against a Third Plan grant of Rs. 1 crore to start 20 such schools, only 14 were established and none since. In view of the success of these schools and the needs of the employment market, one form of vocationalisation of secondary education is to increase rapidly these schools during the Fifth Plan, from State resource, if Central resources are not forthcoming. They will not overlap with diversified courses in secondary schools which are not comprehensive enough, nor with comprehensive schools which are not specialised, nor with ITI which train artisans and craftmen. The decision to introduce more job oriented courses in the technical schools will make them even more employment oriented. The courses include repair and maintenance of motor cycles, scooters, pumps, motors, agricultural tractors, sprayers and printing machinery. The second field is commercial education. 1 lakh students are training in about 1000 institutions in the State in shorthand, typewriting and other subjects. Every May and October, 42,000 students appear for the typewriting examination, 4,000 students for shorthand and 2,000 for other subjects each time. The regulation of this important technical education sector has been taken in hand by the Directorate of Technical Education. Various devices such as dummy numbers, fly slips etc. have been introduced to improve examination procedures. Examination results are announced ten weeks after the examination and certificates mailed three weeks later. The inspection of the Institutes have now been organised to tone up the level of instruction and the standard of equipment. Candidates who have prepared themselves through the Institutes or privately are given equal status. Now the key area of syllabus reform (the last syllabus revision took place in 1954) has been taken in hand by an expert committee and the new study programme will go into effect in 1973, along with a standard pattern of instructional facilities at the Institute, and suitable examinations reform. The other key area is the training of teachers in commercial education to which the Directorate should now turn its attention. In engineering education, the State has formulated 16 projects for advanced studies in soil and structural engineering, machine tool technology, environmental engineering, machine dynamics, and microwave laboratory at the Engineering College, Guindy. Similarly 18 projects have been developed for the

Central Polytechnic, Madras, in dye and tool making machinery, airconditioning and refrigeration, numerical control systems, television, prestressed concrete, plastics, optics, dairy engineering, rubber technology, fisheries and navigation. These 18 projects will cost Rs. 486 lakhs of which the State Government will contribute Rs. 160 lakhs and the rest has been requested through the Centre from UNDP. Along with the restructuring of engineering and polytechnic education and the setting up of boards of industrialists and educators to guide and supervise the institutions reported in the last issue, technical education in the State is forging ahead of general education in qualitative improvement.

Science : The Atomic Energy Commission has drawn up proposals for the development of 2,700 MW of nuclear power by 1980. It is also studying the use of nuclear explosion for the developmet of the copper and uranium deposits of the country. This programme of the peaceful uses of nuclear technology poses a number of technical, health and economic problems which call for interdisciplinary team work. The Commission has also decided to setup a reactor research centre in Madras for making extensive studies in the use of thorium as a potential nuclear fuel for future nuclear power stations. One of the issues now demanding attention is the import of know how through foreign collaboration agreements. Studies by the National Committee on Science and Technology (NCST) show that some of the imports have been obsolete technology, some of it overlapping and duplicating as between industries, and all of them ad hoc to serve a particular business at home or abroad. Hence two decisions have been made. First from now NCST (and no longer the Directorate General of Technical Development) will scrutinise and recommend for approval all foreign technology parts of foreign collaboration agreements. NCST intends to permit only the best technology and the best that can be further worked upon and adapted in the country. Second a committee has been established under the Chairmanship of the Director-General of CSIR to review and recommend R & D programmes and levels by the private sector. The committee has three tasks, two of them fairly easy and the third difficult. The first task is to review briefly the R & D effort of the private sector. This is well known. 0.06 percent of its total sales turn over, amounting to 6 percent of the total R & D of the country originates from the private sector. Except a few large industrial houses, the majority of private sector firms have either no R & D or undertake routine research. The secend task is to review their problems. The major obstacle is also well known. There is no incentive for them to engage in R & D because they are not sure that they will be allowed to use the results of their R & D. Bul this is not the whole story and that is where the third task of proposing a programme comes in. The Private sector firms should be required to spend 1 percent of their total turnover (and so should the public sector undertakings) along with updated, active, and imaginative management and in return they should be given a guarantee that they will be allowed to use the results to their profit and that of the community. In the matter of air and water pollution, (See Vol. I No. 7 and Vol. II Nos. 3 and 4 of the Bulletin), the State has constituted a one man committee to examine the recommendations and of the five member panel. The resulting legislative and executive measures proposed will be acted upon by the Government. The Tamil Nadu Agricultural University has introduced from this academic year the semester system of teaching and the evaluation system. It has also decided to start a four year B.Sc. degree course in Horticulture and five year degree course in Agricultural Engineering.

Health : The Chairman of the Task Force has prepared the Draft Perspective Plan on Health, Nutrition, Family Planning and Sanitation for consideration by the Task

Force in July. The Family Planning Foundation of India, a voluntary non-governmental society of industrialists established to finance research and action projects on population and family planning, at the May meeting of its advisory committee established the criteria and priorities for financing projects. The projects must be innovative, replicative, economical and gap filling, and the priorities are : demonstration projects, integrated health care, involving package inputs of child care, adult education, nutrition and family planning, upgrading family planning research, evaluation of projects, improving statistical and survey work, population education, family life education and literacy and training of personnel. Voluntary agencies engaged in Family planning can now draft projects and apply for finance to the Foundation. The task for the State and Country in this area is enormous. This is one of the three States in which the birth rate has declined to 32 per thousand, but even so only 14.6 percent of the eligible couples in the reproductive age group have been protected and the births averted are only 1.9 lakhs at 1963-64 and another 14.4 lakhs in the future in this State. At this rate, the Country will pass the one billion population mark—nearly double the present numbers—as we enter the twenty first century—28 years from now. The State Government has a growingly effective programme but it must be supported by the people and voluntary bodies continuously and effectively on both the clinical and even more attitudinal and socio-cultural sides where voluntary bodies are decisive. The State has also launched a mass programme to treat during this year one lakh persons who suffer from eye disease. For this purpose 100 camps are being set up at a unit cost of Rs. 25,000 for each camp. The total cost is Rs. 25 lakhs and already on one day, June 3, voluntary contributions of over Rs. 8 lakhs were made by the public to the Chief Minister's Eye Treatment Camp Fund.

Educated Unemployment : The rate of increase in educated unemployment was referred to in the last issue of the Bulletin. The Planning Commission proposal to allocate Rs. 50 crores for this year and next year for generating employment for the educated is timely. It includes employment opportunities inrural engineering surveys, agro-service centres, support to small entrepreneurs, rural water supply schemes, natural resources surveys etc. August 15 will be an important day for this programme for on this Silver Jubilee anniversary of our Independence, a national scheme for providing employment to the unemployed is to be launched. The National Service Bill which was passed by Parliament will provide employment to the engineers and doctors under 30 years of age, by making it compulsory for them to serve for four years in the national service. Attention has been called to the curious coexistence of the lack of health and engineering services in our vast country side and the unemployment of doctors and engineers (see Vol. II Nos. 3 and 5). The National Service will in part remedy this gap. In this State recruitment is underway for the Youth Corps for the second year. Its first year of service has proved its need for helping to alleviate the educationed unemployment situation in the State and meet the crying needs for agricultural extension, health, education and engineering services in the rural country side. The programme should become a statewide programme financed by both Central and State resources. As a further help the State has under consideration a proposal to establish a Placement Bureau in the Directorate of Technical Education for finding engineering graduates suitable jobs. All sources of employment will be pooled in the Bureau, which will sponsor candidates to various departments or organisations for placement according to the needs of the agencies and preferences of the engineers. The Bureau will maintain a record of candidates passing

the degree and diploma courses, write to them about various opportunities of employment and guide them in finding jobs. The Bureau should be set up at the beginning of the academic year in order to reduce the waiting period—now extending to two years—of the graduates. Another initiative in this area is the Information Gallery organised in May/June in Madras University buildings by the University Students' Information Bureau, the University Employment Information and Guidance Bureau and the Students Social and Cultural League. The Gallery helps students alumni and parents with information on courses, training, scholarships and employment opportunities in the State, the Country and abroad. It has attractive charts, illustrations, booklets about various professions and was run for six weeks. It was aided in talks and discussions by leading industrialists and Government Departments. Some colleges have also organised similar career guidance programmes with the help of employers.

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Second Workshop on Economics Research Methodology : The Workshop completed its programme as scheduled. It had a third volume of basic papers with the following contents :

Title	*Author*	*Basic Paper No.*
Project Evaluation	Dr. Sarveswara Rao	13
Use of Census Data	Dr. Pravin Visaria	8
Monetary Economics	Dr. P. R. Brahamananda	16

The third week of the workshop was assisted by Dr. S. C. Joseph and Prof. T. V. S. Rammohan Rao, the fourth week by Dr. P. R. Brahamananda, the fifth week by Prof. A. Neelameghan and the last week by Prof. K. S Sonachalam and D. Malcolm S. Adiseshiah. The Madras Institute of Development Studies is planning to publish a guide to Economics Research Methodology bringing together the experiences and conclusions of the two Workshops in its study series. Dr. C. T. Kurien is the editor of the volume. In the next issue of the Bulletin, an evaluation of the second workshop will be published.

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Seminar on Techniques of Perspective Planning : Arrangements for the Seminar to be held in Rajaji Hall, Madras, on September 15 and 16 are proceeding well. Of the 64 persons invited, the following have agreed to participate in the Seminar.

1. Hon'ble Thiru C. Subramaniam,
   Minister for Planning, Science and
   Technology, Government of India,
   New Delhi.

2. Dr. Kalaignar M. Karunanidhi,
   Chief Minister of Tamil Nadu,
   Madras.

3. Dr. S. P. Adinarayan,
   Vice-Chancellor,
   Annamalai Univerity,
   Annamalainagar, Chidambaram,
   South Arcot Dt.

4. Mr. J A. Ambasankar,
   Secretary to Government,
   Health and Family Planning Department,
   Government of Tamil Nadu,
   Madras.

5. Mr. M. V. Arunachalam,
   Managing Director,
   T. I. Cycles,
   Madras.

6. Mr. V. T. D. Balaraman,
   Director,
   P. A. & M. Consultants,
   Suite, 44, Hotel Airlines,
   179, Mount Road, Madras-2.

7. Mr. N. S. Bhat,
   Chairman and M. D ,
   Binny Limited, Madras.

8. Mr. P. N. T. Chary,
   Secretary,
   Tamil Nadu State Co-operative
   Bank Ltd., Madras-1-

9. Mr. R. N. Chettur,
   Custodian,
   Indian Overseas Bank,
   Madras.

10. Prof. G. R. Damodaran,
    Principal,
    P.S.G. College of Technology,
    Coimbatore.

11. Prof S. K. Ekambaram,
    Statistical Consultant,
    State Planning Commission,
    Madras-5.

12. Mr. Eric da Costa,
    Managing Director,
    Indian Institute of Public Opinion
    Private Limited,
    New Delhi-1.

13. Mr. D. C. Kothari,
    Kothari Buildings,
    Nungambakkam,
    Madras-34.

14. Mr. V. Krishnamoorthi,
    President,
    Panchayat Union,
    Nellikkuppam, S. A. Dt.

15. Mr. V. Krishnamurti,
    Principal,
    College of Rural Services,
    Gandhigram Rural Institute,
    Gandhigram, Madurai Dt.

16. Mr. G. Lakshminarayanan,
    Custodian,
    Indian Bank,
    Madras-1.

17. Mr. N. Mahalingam,
    Member,
    State Planning Commission,
    Madras-5.

18. Mr. A. B. Majumdar,
    Secretary & Treasurer,
    State Bank of India,
    Madras-1.

19. Dr. B. Natarajan,
    Member,
    State Planning Commission,
    Madras-5.

20. **Mr. M. S. Parthasarathy,**
President,
Federation of Associations of Small Industries of India,
Madras-32.

21. Mr. R. Parthasarathy,
Deputy Secretary (Planning),
Gen. Admn. Department,
Gujarat Government,
Gujarat.

22. Mr. E. C. P. Prabhakar,
Secretary,
Rural Development and Local Admn Dept,, Government of Tamil Nadu,
Madras.

23. Dr. V. Rajagopalan,
Professor and Head,
Department of Agrl. Economics,
Tamil Nadu Agricultural University,
Coimbatore-3.

24. Dr. (Mrs.) Rajammal P. Devadas,
Principal,
Sri Avinashilingam Home Science College, Coimbatore-11·

25. Mr. M. G. Raja Ram,
Member,
Board of Revenue,
Madras.

26. Dr. A. Ramachandran,
Director,
Indian Institute of Technology,
Guindy, Madras-36.

27. Dr. B. Ramamurti,
Formerly Regional Statistician, U.N.,
19-A, Second Street,
Balaji Nagar, Madras-6.

28. Dr. A. Ramaswami,
Prof. & Head of the Department of Economics, Annamalai University,
Annamalainagar,
Chidambaram, S. A. Dt.

29. Mr. M. A. M. Ramaswamy,
Sheriff of Madras,
Madras.

30. **Mr. C. Ramdas,**
Secretary,
State Planning Commission,
Madras-5.

31. Dr. G. Rangaswami,
Vice-Chancellor,
Tamil Nadu Agricultural University,
Coimbatore.

32. Prof. S. Sampath,
Deputy Director,
Indian Institute of Technology,
Guindy, Madras.

33. Dr. V. Shanmugasundaram,
Prof. & Head of the Department of Economics, University of Madras,
Madras-5.

34. Prof. K. S. Sonachalam,
Sivagiri House,
Courtallam P. O.,
Via Tenkasi Jn.

35. Mr. K. Srinivasan,
Director,
South India Textile Research Association,
Coimbatore-14.

36. Dr. N. Srinivasaraghavan,
Department of Economics,
Madurai University,
Madurai-2.

37. Mr. K. A. Sundaram,
Deputy Secretary,
State Planning Commission,
Madras-5.

38. Dr. A. Vaidyanathan,
Director (PP),
Central Planning Commission,
New Delhi.

39. Dr. M. Varadarajan,
Vice-Chancellor,
Madurai University,
Madurai-2.

40. Mr. S. Venkitaramanan,
Finance Secretary,
Government of Tamil Nadu,
Madras.

The Seminar papers are being printed as they are received and circulated to participants in two rounds, one in mid-August and the other in early September.

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June Madras Development Seminar

The June Seminar paper, Development of Irrigation and Water Supply in Tamil Nadu, by Prof. S. Ramathan, Joint-Director, Scheduled Castes and Tribes Programme together with a summary of the decisions of the papers at the Seminar on Thursday, June 29th under the Chairmanship of Dr. C. T. Kurien appears as the first article.

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Second Article

Another article—Social Science Inputs for the Fifth Plan—appears as the second article.

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DEVELOPMENT OF IRRIGATION AND RURAL WATER SUPPLY

By

Prof. S. RAMANATHAN

Joint Director, Scheduled Castes and Tribes Programme

A—DEVELOPMENT OF IRRIGATION

Introduction

1.1 It is well known that our country has been predominantly agricultural, as has been Tamil Nadu. It is also well known that scarcity of food material and soaring prices, droughts and famines, and floods causing damage to crops have been periodical features in the country as a whole and in Tamil Nadu. These naturally affect adversely the economic health of the country in no mean measure. It is to be noted in this context that 69.5 percent of the total workers in the country (without including those engaged in plantations, orchards and allied activities) were engaged in the agricultural sector, 52.8 percent as cultivators and 16.7 percent as agricultural labourers.[1] It is ironical that a predominantly agricultural country of the size of India had to import large quantities of food grains leading to adverse balance of trade with some countries, huge foreign debts and draining of the scarce foreign exchange resources. This gloomy picture has been considerably changing thanks to the Five-Year Plans with their special emphasis on the agricultural sector. There has been a good deal of talk about the 'Green Revolution' and the complete stoppage of imports of food grains.

1.2 The increase in the agricultural production in the country has been due to, among other important reasons, the special attention given to the development of major, medium-sized and minor irrigation schemes, to free agricultural production from the caprice of the monsoons. While the emphasis was on major and medium-sized irrigation projects (several of them multi-purpose ones) in the first two Five-Year Plans, the emphasis has shifted to minor irrigation from the Third Five-Year Plan. This became necessary due to the realisation that while the major irrigation projects call for very heavy investments and the call of their execution was slow, minor irrigation schemes involve considerably smaller investments, are easy to execute in a short period of time and yield good results. The minor irrigation schemes received stimulus from the exigencies created by the Chinese aggression on the country's northern borders in 1962. The State Governments were, therefore, urged to concentrate on the development of minor irrigation schemes. Liberal assistance was given to them by the Union Government. Institutional credit for minor irrigation was either created or liberalised.

TABLE 1

TABLE 2

TABLE 3

1.3 Table 1 records the emphasis on minor irrigation from the Third Five-Year Plan (1961-66) and three subsequent Annual Plans as reflected in the Plan provision and

1. Indian Agriculture in Brief, 1970, p. 7

the actual expenditure incurred. The Plan provision for minor irrigation for the Third Plan period was a little more than 57 crores than that in the Second Plan period, and what is even more significant is the amount of actual expenditure of Rs. 270.2 crores as against the provision of Rs. 177.13 crores for the Plan period. The actual expenditure on minor irrigation during the Annual Plan periods of 1966-67 and 1968-69 was more than the provision made. It is also significant that Rs. 515.7 crores is provided for minor irrigation for the period 1969-74 as against the provision of Rs. 120.0 crores and Rs. 177.13 crores for the Second and Third Five-Year Plan periods, respectively. Further, the share of minor irrigation schemes in the total Plan provision for irrigation projects has registered a substantial increase.

1.4 That the area irrigated by wells of all types, minor irrigation works, has considerably increased over the years, constituting a little more than 1/3 of the total area irrigated from all sources in 1966-67 as may be noticed in Table 2. The emphasis on minor irrigation having necessarily to continue, well irrigation is bound to become a very important aspect of irrigation.

1.5 Table 3 shows the increasingly important role of institutional credit in minor irrigation programmes. The amount of loan assistance from these credit institutions rose from Rs. 22.41 crores in 1965-66 to Rs. 127.81 crores in 1969-70. Of the loans advanced by these credit institutions in 1968-69, Tamil Nadu agriculture received 10.5 percent from the Land Development Banks, 26 9 percent from Agricultural Credit Societies, 89 percent from Non-Agricultural Credit Societies and 14.3 percent from Agricultural Refinance Corporation in 1970-71.

Tamil Nadu

2.1 Turning to the picture in Tamil Nadu, the economy of the State is predominantly agricultural. The total geographical area of the State is 13,009 thousand hectares. The rural population constituted 73.31 percent of the total population of the State in 1961. As many as 9286 thousand (6458 thousand and 2828 thousand as cultivators and agricultural labourers respectively) constituting 60.49 percent of the total workers in the State were engaged in the agricultural sector in 1961.[2] The agricultural sector accounts for 41 percent of the total State income. The economic health of Tamil Nadu is, therefore, very much dependent on agricultural production. Adequate and regular supply must be ensured for good agricultural production regulating large dependence on the rainfall. The vagaries of the monsoons in the State are well known.

TABLE 4

2.2 As may be seen in Table 4, during six years of the ten-year poriod between 1960-61 to 1969-70 the rainfall was below normal. The normal rainfall itself in Tamil Nadu is inadequate for good agricultural production. Further, there are the aspects of the very uneven dispersion of rainfall, absence of rain when most needed and rain when not needed, as also the wastage of water.

2.3 In order to increase agricultural production in Tamil Nadu special attention has been given to the development of Irrigation and Power. During the First Five-Year

2. Indian Agriculture in Brief, 1970, p. 15

Plan period (1951—56) 10 new irrigation projects, major and medium-sized, were undertaken with an allocation of Rs. 30.36 crores. These projects, the Lower Bhavani Project, the Mettur Canal, Kodayar Extension, Manimuthar, Amaravathi, Sathanur, Krishnagiri, Vaigai, Araniar and Cauvery Delta Drainage, were designed to bring new areas under cultivation, to provide additional irrigational facilities to certain areas and to stabilise irrigation in certain other areas. During the Second Five-Year Plan period (1956—61) the Pullambadi Canal and New Kattalai High-level Canal, the Vidur Reservoir, Neyyar Second Stage Schemes and the Parambikulam-Aliyar Project were taken up for execution, in addition to the spill-over schemes from the first Plan period, with an allocation of Rs. 16.93 crores. During the Third Five-Year Plan period (1961-66), in addition to the spill-over of the schemes from the previous two Plan periods, Gomukhinadhi, Sathanur Second Stage, Palar improvement and Chittarpattanankal schemes were taken up with a provision of Rs. 32.11 crores. Further, the Manjalar scheme was also undertaken as a non-plan project. During the three Annual Plan periods, in addition to the spill-over from the previous Plan periods, Manimukhthanadhi, Ramanadhi and Gatana schemes were undertaken. Further, schemes for modernising of channels in the Vaigai, Periyar and Thanjavur Delta were executed. The schemes that will spill-over to the next Plan period are the Parambikulam-Aliyar Project, the Chittarpattanamkal, Manimukhthanadhi, Ramanadhi, Gatana Reservoir schemes and modernisation work of Vaigai channels.

2.4 Having tapped almost all the available surface water resources, utilising underground water by means of wells has become the resource that had to be resorted to. The expenditure on minor irrigation was a meagre Rs. 8.42 lakhs during the First Five-Year Plan period. This shot up to Rs. 168 lakhs and Rs. 2,257 lakhs during the Second and Third Five-Year Plan periods. During the three Annual Plans, the outlay was Rs. 1,054 Rs. 1,103 lakhs and Rs. 890 lakhs. The next Five-Year Plan envisages an outlay of Rs. 2,556 lakhs.[3]

TABLE 5

TABLE 6

TABLE 7

2.5 It can be seen in Table 5 that the net area sown increased from 5,997 thousand hectares, i.e. 46.1 percent of the total area, in 1960—61 to 6,281 thousand hectares, 48.3 percent in 1970-71. There has also been an incre se in the area under miscellaneous tree crops and groves from 246 thousand hectares during the same period. There has been a decrease in the areas of land under non-agricultural uses, cultivable waste, current fallows and other fallows during the period. The scope for further extension of cultivation over large new areas is very limited.

2.6 Table 6 shows that the net area irrigated, excluding area irrigated by wells supplementing other sources, which was only 2,293 thousand hectares at the beginning of the Second Five-Year Plan period and increased to 2,486 thousand hectares in 1970 71. The increasingly important role of well irrigation is also evident in the Table. Well irrigation which accounted only for 23.7 percent of the area irrigated during the Second Five-Year Plan period accounted for 27.2 percent in 1970—71. As of 1970—71 the areas irrigated by Government canals, tanks and wells were 34.6 percent, 36.3 percent and 27.4 percent respectively of the total net area irrigated.

3. Tamil Nadu — An Economic Appraisal, 1971, p. 9

2.7 The importance of rural electrification in the context of minor irrigation is evident in the very significant increase in the number of pumpsets energised during the period 1960-61 to 1970—71. As may be seen in Table 7, the number of pumpsets energised rose from 1,17,695 in 1960—61 to 5,30,044 in 1970—71.

Districts :

3.1 Turning from the State to the districts, based on proper survey it is important that they be provided with the needed additional facilities for agricultural purposes, particularly the so-called 'non-agricultural' districts. Good use of the vast technological knowledge in agriculture would be beneficial.

TABLE 8 (a)

TABLE 8 (b)

TABLE 8 (c)

3.2 It is to be seen from Tables 8 (a), 8 (b) and 8 (c) that the net area irrigated increased during the period 1951—69 in all the districts except Chingleput and North Arcot. There were, however, some fluctuations in these districts except in Thanjavur. The decrease in the net area irrigated in Chingleput and North Arcot may call for some investigation, particularly when there is no apparent diminution in the sources of water supply.

3.3 These Tables also show that the number of tube wells and other wells have considerably increased in South Arcot, North Arcot, Tiruchirapalli, Thanjavur and Madurai. The number of tube wells came down from 206 to 28 in Ramanathapuram and from 1,523 to nil in Tirunelveli, while the number of other wells in the two Districts increased. This also calls for some investigation. In Coimbatore the number of tube wells fell to 27 from 132 in 1967—68.

Administration :

4.1 Major Irrigational systems including Major Tanks are under the Public Works Department, while the Minor Irrigation systems including Minor Tanks are under the Panchayat Unions.

Some Points for Consideration :

5.1 Scientific exploration of the places where ground water is available is not merely desirable but necessary in order to augment the present water supply and eliminate wasteful expenditure. In this context Geophysics gains importance. Geophysics is not offered as a special subject in any of the Universities or the Engineering Colleges in Tamil Nadu. Would it not be worthwhile in the interest of future irrigational development in the State to induce one of these institutions to offer Geophysics as a special subject ?

5.2 Since the available ground water is bound to be limited, new sources of water supply would have to be necessarily thought of. Intensive cultivation may have to be extended, and intensive cultivation demands adequate and regular water supply. In this context would it be worthwhile to devise measures to conserve rain water, for making artificial rain and undertake desalinisation of our vast sea water resources ?

5.3 The ceiling on agricultural land and the distribution of a few acres of cultivable land to the cultivating tenants would lead to sub-division and fragmentation in course of time, and, on the basis of past experience Co-operative farming is not likely to be a practical proposition. What measures can be devised to prevent sub-division and fragmentation? Would an Act of Primo-geniture for succession to agricultural holdings be the answer?

5.4 The administrative control of the major irrigational systems and minor irrigational systems are vested in the Public Works Department and the Panchayat Unions respectively. Proper maintenance of the major and minor irrigational systems, timely repairs and renovations, which are imperative, would call for good technical knowledge and scientific expertise. Would some kind of co-ordination be necessary between those in charge of major and minor irrigational projects? Can the Panchayat Unions be expected to have in their employ the type of expert persons needed for the care and maintenance of the minor irrigational systems, particularly when they have assumed great importance? Has any investigation been made in this matter? Would it be desirable to divide the State into a few zones for the irrigational purpose, create a Department of Irrigation and establish zonal offices?

B — RURAL WATER SUPPLY

Introduction :

1.1 Reliable published material on rural drinking water supply is limited. There are many discrepancies among the unpublished reports. But it is a fact that rural water supply has been a much neglected field for long both at the national and State levels. That such a vital field has been almost utterly neglected is unfortunate and it is even more so in the case of a country which is predominantly agricultural and in which the rural population constitutes a vast majority of the total population. The data used here is mostly from unpublished reports.

1.2 There were four different programmes with little or no co-ordination between them in the field of rural water supply They were: (1) the National Water Supply and Sanitation Programme, confined to piped water supply only, under the Union Ministry of Health, (2) the Backward Classes Programme under the Union Home Ministry implemented through the Department of Harijan Welfare and Rural Development and Water Supply Scheme, (3) the Community Development Programmes restricted to Community Development Blocks and to sinking simple wells, bore wells and tube wells and (4) the Local Development Programmes implemented in Non-Block areas by the Revenue Department. When a multiplicity of agencies function in the same field with no co-ordination between them, it is difficult to get a clear picture of the actual state of affairs.

1.3 "The work carried out under the different programmes has revealed the following information :

(a) About 223,000 villages covering 180 million population possessed adequate water supply through simple wells and handpumps, but these were not necessarily safe and hygienic ;

(b) 167,000 villages with 137 million population had drinking water supply facilities from simple wells and handpumps, but the supplies were generally inadequate and unhygienic ;

(c) About 20,000 villages covering a population of nearly 11.4 millions were covered with protected water supply systems under the National Water Supply and Sanitation Programme.

It is thus seen that hardly 3.2 percent of the rural population has been provided with a "safe" piped water supply system while 73.8 percent of the population has been provided with drinking water from simple wells. The balance of 23 percent of the population has not been tackled...........

Under the National Water Supply and Sanitation Programme, 2,878 rural water supply schemes costing Rs. 81.4 crores were reviewed and approved by the Government of India up to March 1970. During the year 1970-71, 210 additional rural water supply schemes costing Rs. 14.03 crores were approved under the programme till the end of October, 1970."[4]

Tamil Nadu

2.1 The total number of villages and hamlets in Tamil Nadu is 58,995 consisting of 45,728 villages and hamlets with a population of less than 500; 11,560 villages and hamlets with a population between 500 and 2,000 and 1,707 villages with a population of above 2,000.[5] About 70 percent of the State population is rural, according to the 1971 Census.

2.2 During the First Five-Year Plan period (1951-56) Rs. 190.17 lakhs were spent in completing 1,628 wells and renovating 1,801 wells, while in the Second Plan period (1956-61) Rs. 319.87 lakhs were spent to complete 10,572 wells and renovating 14,097 wells. In the Third Plan period (1961-66) Rs. 588.1 lakhs were spent in completing 13,093 wells and renovating 9,637 wells. During the three Annual Plan periods (1966-67 to 1968-69) Rs. 365.60 lakhs and during the first two years of the Fourth Plan period (1969-70 and 1970-71) Rs. 289.56 lakhs were spent on rural water supply[6].

2.3 Further, there is a comprehensive scheme of sinking 8,850 Tube Wells in rural areas at an estimated cost of Rs. 2.71 crores.

2.4 It is common knowledge that in some of the rural areas the people collect donations either to sink new wells or to renovate old ones. There does not seem to be any record of amount spent by the people themselves.

2.5 Notwithstanding all that has been done thus far in the matter of rural water supply by various agencies, the position as of today is that there are 4,916 villages without any source of water, 2,230 villages in endemic areas having very inadequate water supply and practically no supply during the summer months[7]. Further, a sizeable segment of the rural population is left with only primitive sources of drinking water supply. There are still 206 step wells, 4,089 'ooranies' and 1,748 other unsatisfactory sources of drinking water supply, as may be seen from Table No.9.

2.6 Some rural areas have been designated as 'difficult' and some others as 'permanently disadvantageous' in relation to water supply. There are 2,681 villages coming under the latter category, as may be seen in Table No. 10.

Source : 4. Monthly Commentary of Indian Economic Conditions Annual Number, 1971, p. 141
Source : 5 and 6 Unpublished Reports
7. Unpublished Report.

2.7 The twenty-five year period after independence has turned out to be not long enough to collect any reliable data relating to the per capita consumption of water in rural areas. According to one unpublished report, it is assumed to be 2 to 3 gallons per day. The picture of rural water supply is dismal and distressing.

Administration

3.1 Four different agencies were implementing programmes for rural water supply (vide para 1.2) till 1963 when all the rural water supply schemes except the one for Backward Classes were entrusted to the Panchayat Unions. The State Government set up the Tamil Nadu Water Supply and Drainage Board in 1971. The relevant Act provides that schemes costing more than Rs. 50,000 should be investigated, designed and executed by this Board, while schemes costing less than that amount should have the approval of the Board before the local bodies take them up for execution.

Even though this Board started functioning from 14-4-1971 the Panchayats and Panchayat Unions are still continuing their own water schemes for which provision can be made by the Rural Development and Local Administration Department in the rural areas. The executing agency for the schemes of rural water supply of the Harijan Welfare Department and the Panchayat Institutions under the control of the directorate of Rural Development is still the Highways Department.[8]

Some Points for Consideration

4.1 Tamil Nadu is predominantly an agricultural State, the agricultural sector accounts for 41 percent of the State income and the rural population constitutes about 70 percent of the State population. To provide the rural population with safe and adequate water supply is, an urgent necessity. Reliable and accurate data about the per capita consumption for drinking and other purposes of the rural people, the number of villages that have no water supply at all, that have inadequate or unprotected water supply, that have adequate and protected supply, the number of sources that are really still usable, etc. have not been collected so far and there are only rough estimates about them. In this context :

(a) which agency would be best suited for the collection of the needed data correctly and quickly on the basis of which a comprehensive programme can be formulated ?

(b) what is to be the priority to be accorded to the programme of rural drinking water supply ?

(c) how is this programme to be financed as the outlay is bound to be substantial?

(d) which agency or agencies would be best suited to implement this programme, and if there is to be more than a single agency how is proper co-ordination between them to be effected ?

(e) what is to be the period within which this programme should be completed ?

and (f) would it be desirable, if possible, to dovetail this programme with the programme for rural employment ?

Source : 8 Unpublished Report.

TABLE NO. 1

PLAN-WISE PROVISION AND EXPENDITURE OF MINOR IRRIGATION IN THE PUBLIC SECTOR (ALL INDIA)

(Rupees in crores)

Plan	Plan Provision	Actual Expenditure	Increase (+) or decrease (—) in expenditure on Plan Provision (in %)	Total Plan Provision on Major, Medium and Minor irrigation Project	Share of Minor irrigation schemes in the total plan provision for irrigation Programme
1	2	3	4	5	6
1. First Plan (1951—56)	N. A.	85.0	N. A.	469.0 (a)	18.1 (b)
2. Second Plan (1956—61)	120.0	94.9	— 21.0	422.11	22.5
3. Third Plan (1961—66)	177.13	270.2	+ 53 4	776.89	22.8
4. Annual Plans					
(i) 1966—67	87.94	110.42	+ 25.5	217.94	40.3
(ii) 1967—68	108.20	106.53	— 1.6	237.39	45.6
(iii) 1968—69	95.39	96 47	+ 0.08	237 68	24.9
Total Annual Plans	291.53	313.42	+ 7.5	693.11	42.0
5. Fourth Plan 1969—74)	515 70	—	—	1469.50	35.1

Notes : (a) Comprises of an outlay of Rs. 384 crores on Major Irrigation and Rs. 85 crores on Minor irrigation.

(b) Share of expenditure on Minor irrigation estimated on the basis of actual expenditure.

(c) Plan Provision figures are exclusive of outlays under community Development Programme.

Source : **Bank of India Bulletin September 1971 page 131.**

TABLE NO. 2

AREA IRRIGATED FROM DIFFERENT SOURCES (IN '000' HECTARES) (ALL INDIA)

	Particulars		*1960—61*	*1961—62*	*1962—63*	*1963—64*	*1964—65*	*1965—66*	*1966—67*
1.	Government Canals	...	9,170	9,339	9,686	9,862	10,080	9,887	10,267
2.	Private Canals	...	1,200	1,163	1,146	1,160	1,143	1,132	1,088
3.	Tanks	...	4,561	4,612	4,781	4,599	4,780	4,430	4,570
4.	Wells	...	7,290	7,352	7,649	7,884	8,075	8 665	9,488
5.	Other Sources	...	2,440	2,418	2,403	2,483	2,522	2,543	2,075
	Total	...	24,661	24 884	25,665	25,888	26,600	26,657	27,478

Source: Monthly Commentary on Indian Economic Conditions — Annual Number 1971, p. 143

TABLE NO. 3

Institutional Credit to Programmes of Minor Irrigation during the Period 1961—62 to 1970—71 (Rupees in Crores) (All India)

Institution	*1961—62*	*1962—63*	*1965—66*	*1967—68*	*1968—69*	*1969—70*	*1970—71*
A. Co-operative Sector							
(i) Agricultural Credit Societies	1.40	1.95	4.44	3.24	4.82	7.58	N.A.
(ii) Non-Agricultural Credit Societies	0.76	0.61	0.92	0.59	0.51	0.17	N.A.
(iii) Land Development Banks	N.A.	N.A.	17.05	44.72	68.58	52.38	N.A.
Total Co operative Sector	—	—	22.41	48.55	73.91	60.13	N.A.
B. Other Institutions							
(iv) Agricultural Refinance Corporation	—	—	—	1.29	9.19	22.31	25.54
(v) Rural Electrification Corporation	—	—	—	—	—	5.89	N.A.
C. Commercial Banks							
(vi) Nationalised Banks	—	—	—	2.46	17.32	16.52	14.80 (a)
(vii) Other Banks in Private Sector	—	—	—	—	0.02	—	0.34 (a)
Total Commercial Banks	—	—	—	2.46	17.34	16.52	15.14
(viii) Agricultural Finance Corporation	—	—	—	—	3.31 (b)	22.96	
Grand Total (A+B+C)	—	—	22.41	52.30	103.75	127.81	

Notes: (a) Relates to end of March, 1971. (b) Relates to Minor Irrigation Schemes only.

Source: Bank of India Bulletin, September 1971, p. 134.

TABLE NO. 4

SEASON—WISE DISTRIBUTION OF RAINFALL (IN MILLIMETRES) (IN TAMIL NADU)

Year		South West Monsoon (June to September)		North East Monsoon (October to December)		Winter Period (January to February)		Hot Weather Period (March to May)		Total	
		Normal	*Actual*	*Normal*	*Actual*	*Normal*	*Actual*	*Normal*	*Actual*	*Normal*	*Actual*
1960—61	...	307.3	317.3	449.7	486.4	50.9	86.8	137.8	87.8	945.7	978.3 +
1961—62	...	307.3	371.0	449.7	309.8	50.9	31.1	137.8	155.1	945.7	867.0
1962—63	—	307.3	324.7	449.7	394.6	50.9	76.1	137.8	136.0	945.7	931.4
1963—64	...	307.3	315.0	449.7	506.1	50.9	10.7	137.8	75.8	945.7	907.6
1964—65	...	307.3	346.6	449.7	405.5	50.9	7.7	137.8	99.3	945.7	859.1
1965—66	...	307.3	314.5	449.7	441.4	50.9	18.9	137.8	95.7	945.7	870 9
1966—67	...	307.3	415.8	449.7	606.0	50.9	29.3	137.8	101.7	945.7	1152.8 +
1967—68	...	307.3	285.0	449.7	459.9	50.9	12.2	137.8	165.7	945.7	958.8
1968—69	...	307.3	270.9	449.7	312.1	50.9	8.2	137.8	91.3	945.7	682.5 —
1969—70	...	307.3	238.4	449.7	612.6	50.9	33.1	137.8	152.6	945.7	1036.7 +
1970—71	...	307.3	318.0	449.7	420.1	50.9	27.4	N.A.	N.A.	N.A.	N.A.

Source ; Tamil Nadu — An Economic Appraisal, 1971, p. 134

TABLE NO. 5

LAND UTILIZATION AND PERCENTAGE IN TAMIL NADU

(In '000' hectares)

Classification of area	*1960—61*	*61—62*	*62—63*	*63—64*	*64—65*	*65—66*	*66—67*	*67—68*	*68—69*	*69—70*	*70—71*
Forest	1866 (14.3)	1883 (14.5)	1868 (14.4)	1885 (14.5)	1866 (14.5)	1907 (14.6)	1916 (14.7)	1924 (14.8)	1925 14.8)	1908 (14.7)	1916 (14.7)
Barren and uncultivable land	945 (7.3)	886 (6.8)	892 (6.9)	891 (6.8)	889 (6.8)	878 (6.8)	807 (6.7)	870 (6.7)	880 (6.8)	877 (6.7)	874 (6.7)
Land put to non-agricultural uses	1295 (9.9)	1305 (10.0)	1361 (10.4)	1348 (10.4)	1343 (10.3)	1346 (10.3)	1355 (10.4)	1370 (10.5)	1366 (10.5)	1300 (10.0)	1279 (9.8)
Cultivable waste	706 (5.4)	694 (5.3)	696 (5.3)	690 (5.3)	690 (5.3)	682 (5.3)	657 (5.0)	630 (4.8)	672 (5.2)	658 (5.1)	651 (5.0)
Permanent pastures and other grazing lands	363 (2.8)	356 (2.8)	354 (2.7)	349 (2.7)	346 (2.7)	343 (2.6)	337 (2.6)	337 (2.6)	335 (2.6)	340 (2.6)	338 (2.6)
Land under miscellaneous tree crops and groves	246 (1 9)	263 (2.0)	269 (2.0)	271 (2.1)	278 (2.1)	273 (2.1)	272 (2.1	274 (2.1)	258 (2.0)	250 (1.9)	270 (2.1)
Current fallows	974 (7.5)	965 (7.4)	898 (7.0)	933 (7.2)	942 (7.3)	1029 (7.9)	920 (7.1)	929 (7.1)	1150 (8.8)	900 (6.9)	900 (7.0)
Other fallows lands	623 (4.8)	646 (5.0)	588 (4.5)	586 (4.5)	630 (4.7)	624 (4.8)	602 (4.6)	596 (4.6)	725 (5.5)	510 (3.9)	500 (3.8)
Net area sown	5997 (46.1)	6017 (46.2)	6096 (46.8)	6055 (46.85)	6030 (46.3)	5934 (45.6)	6085 (46.8)	6083 (46.8)	5687 (47.8)	6267 (48.)	6281 (48.3)
Total	13015 ('00)	13015 (100)	13016 (100)	13014 (100)	13014 (100)	13016 (100)	13011 (100)	13011 (100)	12998 (100)	13010 (100)	13009 (100)

Note : Figures for 1969-70 and 1970-71 according to statistical returns of Season and Crop Report based on Jamabandi have not yet been received from Collectors. Hence estimates have been framed based on preceding five years' data for these two years.

* Provisional

Source : Tamil Nadu-An Economic Appraisal —1971, page 136 and 138.

TABLE NO. 6

AREA IRRIGATED BY SOURCES AND PERCENTAGES IN TAMIL NADU

In '000' hectares)

S. No.	Source	*First Five-Year Plan average*	*Second Five-Year Plan average*	*Third Five-Year Plan average*	*1966—67*	*1967—68*	*1968—69*	*1969—70*	*1970—71*
	Net Area Irrigated by :								
1.	Government Canals	768 (36.9)	838 (36.5)	878 (35.8)	859 (34.2)	892 (33.9)	891 (36.9)	866 (35.0)	861 (34.6)
2.	Private Canals	2 (0.1)	1 (0.1)	1 (0.1)	1 (—)	1 (—)	1 (—)	1 (—)	1 (—)
3.	Tanks	762 (36.6)	869 (37.9)	919 (37.4)	966 (38.5)	990 (37.8)	750 (31.0)	900 (36.4)	902 (36.3)
4.	Wells—								
	(i) Tubewells		2 (0.1)	5 (0.2)	5 (0.2)	6 (0.2)	10 (0.4)	6 (0.2)	6 (0.2)
	(ii) Sole irrigation	500 (24.0)	544 (23.7)	610 (2.48)	634 (25.3)	692 (26.3)	734 (30.4)	662 (26.7)	675 (27.2)
	(iii) Supplementing other source of irrigation		76 (—)	104 (—)	86 (—)	105 (—)	109 (—)	102 (—)	101 (—)
5.	Other sources, viz Springs, Channels etc.	50 (2.4)	39 (1.7)	42 (1.7)	46 (1.8)	48 (1.8)	31 (1.3)	41 (1.7)	41 (1.7)
6.	Total net area irrigated excluding area irrigated by Wells supplementing other Sources	2082* (100.0)	2293 (100.0)	2 455 (100.0)	2511 (100.0)	2629 (100.0)	2417 (100.0)	2476 (100.0)	2486 (100.0)
7.	Percentage of net area irrigated to net area sown	37.1 (—)	39.3 (—)	40.7 (—)	41.3 (—)	43.2 (—)	41.0 (—)	39.5 (—)	39.6 (—)

Note : Figures for 1969-70 and 1970-71 according to season and Crop Report based on Jamabandi have not yet been received from the Collectors. Hence estimates have been framed based on preceding five years data for these two years.

Includes area Irrigated by wells—
Supplementing other sources

Source : Tamil Nadu — An Economic Appraisal — 1971, pp. 143, 147 and 148.

TABLE NO. 7

ENERGY SALES FOR IRRIGATION, VALUE AND NUMBER OF PUMPSETS ENERGISED IN TAMIL NADU

Year	*Energy for Irrigation*	*Percentage*	*Value*	*Percentage*	*Number of pumpsets Emergised*
1960—61	365.82	20.75	274.22	18.5	1,17,695
1961—62	425 00	21.01	324.58	19.05	1,40,601
1962—63	501.44	22.07	360.54	19.11	1,65,651
1963—64	559.40	22.00	406.55	18.21	1,92,424
1964—65	658.83	22.91	491.37	18.08	2,25,192
1965—66	785.47	23.90	663.59	20.63	2,56,594
1966—67	732.20	12.79	616.56	16.03	2,89,903
1967—68	997.69	25.34	842.54	20.16	3,44,483
1968—69	1073.62	25.28	923.32	19.90	4,10,119
1969—70	1036.94	22.88	987.17	19.10	4,70,776
1970—71 (upto Dec. 31, '70)	1005.58	23.99	N.A.	N.A.	5,30,044 (Tentative)
Growth Rate : 1961—70	18.1%	—	—	—	

Note : (1) Energy in Million Units.

(2) Value in lakhs of Rupees.

Source : Tamil Nadu an Economic Appraisal — 1971, pp. 204, 205, 206, 207 and 210.

TABLE NO. 8 (a)

SOURCES OF WATER SUPPLY AND NET AREA IRRIGATED IN TAMIL NADU

District	I Plan (1951—56)						II Plan (1956—61)					
	Canals	Tube Wells	Other Wells	Reservoirs	Tanks	net area irrigated (ha)	Canals	Tube Wells	Other Wells	Reservoirs	Tanks	net area irrigated (ha)
Chingleput	84	—	40,618	—	2628	166,674	63	5	55,689	1	3253	243,801
South Arcot	500	186	53,829	3	2710	234,377	500	446	65,423	3	2708	274,905
North Arcot	671	7	162,515	—	3166	199,375	748	7	131,332	1	3189	199,877
Salem	486	—	107,904	—	2107	130,602	681	27	199,740	2	2590	144,600
Coimbatore	71	—	115,342	—	101	198,297	62	2	108,897	3	113	257,803
Tiruchirapalli	484	—	118,215	—	5414	206,207	484	34	112,665	—	6200	189,249
Thanjavur	706	20	24,942	—	447	477,761	431	76	33,698	—	492	500,114
Madurai	91	—	75,526	—	3085	178,969	75	—	790,611	—	2877	200,078
Ramanathapuram	8	206	32,767	—	3272	177,137	9	—	30,365	—	3824	260,072
Tirunelveli	363	1523	54,361	5	2224	131,966	396	*1038	56,083	2	2407	157,768
Malabar	5	2	2,206	18	1629	19,723	—	—	—	—	—	—
South Kanara	3	—	1,919	—	593	40,975	—	—	—	—	—	—
Nilgiris	—	—	—	—	—	100	—	—	—	—	—	—
Kanayakumari	—	—	—	—	—	—	33	4	385	2	2250	280,47
State	3480	1944	789,694	26	27296	2162,176.	3503	1639	874,061	15	29903	2462,251

Note ; Figures included for Malabar and South Kanara prior to States re-organization

X Not used for irrigation

Source : Season and crop Reports, Tamil Nadu for Tables 8 (a), 8 (b) and 8 (c).

TABLE NO. 8 (b)

SOURCES OF WATER SUPPLY AND NET AREA IRRIGATED IN TAMIL NADU

District	Canals	Tube Wells	Other Wells	Reservoirs	Tanks	Net area irrigated (ha)	Canals	Tube Wells	Other Wells	Reservoirs	Tanks	Net area irrigated (ha)
Chinglepul	94	6	57,988	1	3197	215,795	94	6	57,988	1	3197	227,238
South Arcot	500	1052	90,133	3	2900	253,523	500	770	90,133	4	2900	266,621
North Arcot	748	222	176,232	1	3189	237,735	748	222	172,674	1	3189	276,702
Salem	79	—	140,698	1	643	116,663	93	93	140,698	1	635	118,910
Dharmapuri	80	—	43,358	1	1864	44,190	85	85	45,429	1	1870	56,435
Coimbatore	62	9	124,298	3	113	238,197	73	70	125,147	4	113	231,146
Tiruchirapalli	494	132	137,569	—	7856	203,269	487	132	141,838	—	7856	216,449
Thanjavur	141	303	36,253	—	883	503,861	141	626	36,653	—	883	505,704
Madurai	230	125	78,114	2	4474	179,488	414	125	78,694	2	5495	171,695
Ramanathapuram	—	26	228,698	—	5366	225,732	—	26	29,454	—	5366	230.169
Tirunelveli	395	423	620,82	6	2407	159,380	399	—	63,423	14	2417	157,676
Nilgiris	—	3	—	—	—	647	—	—	—	—	—	1,105
Kanayakumari	—	—	540	3	2449	28,891	—	5	552	3	2449	31,310
State	2856	2303	975,963	21	35341	2398,574	3070	1932	986,593	31	36370	2511,160

TABLE NO. 8 (c)

SOURCES OF WATER SUPPLY AND NET AREA IRRIGATED IN TAMIL NADU

	1967—68						1968 69					
District	*Canals*	*Tube Wells*	*Other Wells*	*Reservoirs*	*Tanks*	*Net area irrigated (ha)*	*Canals*	*Tube Wells*	*Other Wells*	*Reservoirs*	*Tanks*	*Net area irrigated (ha)*
Chingleput	94	6	58,130	1	3197	229,736	94	9	63,827	1	3197	156,433
South Arcot	500	770	90,387	4	2900	274,496	500	2354	113,073	5	2900	263,478
North Arcot	748	—	176,789	1	3189	278,106	748	222	196,750	1	3189	184,352
Salem	95	—	141,318	1	635	129,668	86	—	142,677	1	635	127,144
Dharmapuri	240	20	65,323	1	2132	58,887	234	—	69,160	1	2132	59,243
Coimbatore	73	132	125,008	4	113	249,286	74	27	130,976	5	114	240,340
Tiruchirapalli	487	626	146,337	1	7856	230,763	487	741	159,655	1	7856	233,747
Thanjavur	141	224	38,285	—	883	510,586	141	637	38,393	—	883	511,785
Madurai	414	26	91,917	2	5495	207,710	414	224	91,917	2	5495	207,870
Ramanathapuram	—	—	29,753	—	5366	254,580	11	28	38,368	—	5366	239,671
Tirunelveli	399	—	63,450	14	2417	172,670	396	—	68,432	8	2417	161,791
Nilgiris	—	—	—	—	—	708	—	—	27	—	2	424
Kanyakumari	36	11	552	2	2449	31,470	36	7	558	2	2449	31,004
State	3197	2037	1027,349	31	36,032	26,28,666	3211	4249	1,11,3892	27	36665	2,417,262

TABLE NO. 1

SOURCE OF DRINKING WATER SUPPLY FOR RURAL AREAS AS ON 31-3-1971 IN TAMIL NADU

Districts	*Overhead tanks*	*Piped Water*	*Automatic pressure tanks*	*Grounp level reservoir*	*River valley scheme*	*Hand Pumps*	*Tube wells*	*Bore wells*	*Artesion wells*	*Draw Wells*	*Stet Wells*	*Oorinies*	*Others*	*Total*
Chingleput	172	167	192	39	1	734	220	114	27	5801	—	390	289	8,146
South Arcot	301	159	42	31	—	2,295	18	1,246	—	5724	—	154	95	10,065
North Arcot	296	94	139	29	—	38	—	—	—	8163	—	—	66	8,835
Salem	302	148	31	27	—	16	1	2	—	5536	58	—	331	6,452
Dharmapuri	68	30	3	6	—	219	—	166	—	3863	46	—	13	4,414
Coimbatore	753	393	10	245	10	15	—	14	—	7719	6	—	3	9,168
Tiruchirapalli	600	173	33	11	—	1,698	96	42	4	7953	90	793	24	11,477
Thanjavur	173	92	101	4	—	11,160	5,950	679	723	4185	—	293	34	223,394
Madurai	444	168	16	61	36	414	3	—	—	6657	1	317	1	8,118
Ramanathapuram	199	90	161	3	—	214	—	18	—	4714	5	1,972	707	8,083
Tirunelveli	333	116	14	61	2	1,457	10	14	—	5074	—	170	76	7,327
Kanayakumari	73	38	—	20	—	35	—	—	—	1001	—	—	15	1,182
Nilgiris	6	209	—	8	—	—	—	—	—	85	—	—	84	392
Total	3720	1,877	742	5 45	49	18,298	6,396	2295	754	66385	206	4.089	1,748	10,7053

Source : Unpublished Report.

TABLE NO. 2

PERMAMENTLY DISADVANTAGEOUS AREA NEEDING WATER SUPPLY IN TAMIL NADU

District	NUMBER OF VILLAGES								
	Hilly Regions	*Sandy Zoues*	*Saline Tracts*	*Cholera area*	*Guinea Worm area*	*Excess Fleurides*	*Excess Iron*	*Excess Hardness*	*Total*
1. Chinglepet	18	50	33	18	—	—	—	—	119
2. North Arcot	74	24	54	97	—	—	—	4	253
3. South Arçot	28	67	29	209	43	—	—	5	381
4. Dharmapuri	287	—	—	72	—	—	—	—	359
5. Salem	170	16	37	4	—	—	—	—	227
6. Coimbatore	15	—	63	7	—	10	9	1	105
7. Niligiris	30	—	—	—	—	—	—	—	30
8. Tiruchirapalli	—	—	2	—	—	—	—	—	2
9. Thanjavur	—	285	21	—	—	35	—	72	413
10. Madurai	29	5	37	5	—	—	—	—	76
11. Ramanathapuram	—	167	224	115	—	—	—	11	517
12. Tirunelvel	—	13	76	11	50	—	—	1	151
13. Kanyakumari	31	6	5	4	—	—	—	2	48
Total	682	633	581	542	93	45	9	96	2,681

Source : Unpublished Repoı

In the discussion of the paper at the Seminar on Thursday, June 29th in the Seminar room of the Institute under the Chairmanship of Dr. C. T. Kurien, Professor of Economics, Madras Christian College, Tambaram, the current policies in respect of Water Supply and Irrigation in Tamil Nadu, the administrative setup, Agencies financing the schemes, role of Local Bodies like the Panchayat Unions, the priorities for water supply particularly with reference to waterless villages, imbalances in irrigation in certain districts and possible corrective measures in respect of administration and technical expertise were discussed.

The main problem identified was that of complete absence of water supply in 4916 villages, inadequate water supply and recurring scarcity during summer months in 11,816 villages and adequate but unprotected water supply in 2,230 villages of Tamil Nadu. Though the urgency of the problem was realised as early as 1939, a dynamic and systematic approach is only now beginning to emerge. Although the 'Green Revolution' emphasised the needs of agriculture and led to a stepping up of irrigation facilities, a simultaneous attempt has not been made in the matter of water supply. It was also felt that a comprehensive water supply policy should cover the possible increase in the needs of industry as well.

The lack of acceptable statistics collected by reliable sources was considered a serious handicap for an adequate estimate of the collective needs and laying down of effective policies. Administratively the ground Water Directorate was in a better position to remedy this lacuna.

The administrative picture for irrigation and water supply was that of a multiplicity of government agencies with overlapping functions - such as the Irrigation Department, the Tamil Nadu Water Supply and Drainage Board, the Ground Water Directorate, the Public Works Department, the Electricity Board and local authorities without financial viability or sufficient technical skill. A simplified set up or a single Agency with comprehensive powers, is necessary for better functioning.

The statistical data given in the paper reveals a serious districtwise imbalance in net area irrigated and the increase in resources made available for irrigation, notably in Chinglepet and North Arcot districts where there were sharp falls in the area under irrigation.

The financing of water supply schemes and irrigation facilites were reviewed. Apart from State and Central financing, long term credit from the L.I.C. and Nationalised Banks were other possible sources.

There was complete agreement on the need to improve technical expertise. The main suggestion in this regard was the introduction of the study of Geophysics as one of the disciplines in the University as the study of the subject is not offered, at present, in any of the Universities and Engineering Institutions in the State. A further point in technical constraints was the shortage of power which restricted experiments on a large scale in desalinisation of brackish water. Another factor was the need to control indiscriminate use of ground water.

During the discussion on rural water policy, the persistent social discrimination against Scheduled Castes/Tribes existing even to-day, in the matter of using common wells, was pointed out and the need to continue special provision for them was urged.

THE SOCIAL SCIENCES INPUT IN THE FIFTH PLAN *

Planning for Development

Our development model, summarised in the slogan, "Garibi Hatao,' is now established for all of us. We have come to this model through what I would describe as a long, weary four stage process. The first stage, which goes back to my school days and those of my father's was directed by the principle "Start from where you are and change as little as possible." This was the time when the art of social change was summarised in the infamous phrase, "A smile for a friend and a sneer for the world is the way to govern mankind." There was no place for the social sciences in a society where the social forms of the Eternal East, it was felt, could only be understood in terms of their own symbolism and mystical unlogic, as against the positivistic concepts on which modern science rests. From there we moved on to the second stage where social change was promoted in bits and pieces under the ad hoc rule. "Do what you can because every little bit helps." This seemed to be the only way for a society which was officially described as being pervaded by "the placid contentment of the masses." Behind this characterisation was the western model of unilinear development, to which the peoples of India had failed to conform. And so the seeds of western social science began to be implanted in our soil with alien empire builders performing for our peaceful but ailing society little bits and pieces of analysis that were thought to help—a Vincent Smith's History of India, a Vera Anstey's Economic Conditions of India, a Henry Maine's The Indian Village Community. We then moved on to the third stage, the revolutionary, fast moving, nation shaking and welding stage of the thirties and forties under the slogan "Change everything all at once." Once we became conscious of traditionalism and its parasitical overlay of colonialism and began glimpsing at the power of science to examine and expose our social realities with a view to remaking rather than adjusting to them, once we saw the link between imperialism and our falling per capita income, falling per capita consumption and the periodic famines culminating in the 1942 Bengal famine, low life expectancy, growing illiteracy and erosion of our humanistic values and classical cultures, the political, economic and social revolution of the freedom struggle, with its massive attack, simultaneously on all fronts was bound to happen. That was the time when the first Twenty Year Plan for the industrialisation of the country was formulated here in this city and also the time when Kumarappa's social instincts and genius were harnessed in founding this historical Institute. The time trends against which we came up, however, led to the fourth stage, where we are now building the development model on the principle "identify and manipulate the key variables."

Our Development Model

In building this model, we have defined for ourselves to-day, four key variables—growth, social justice, stability and self reliance. If I were to describe the Fifth Plan model based on these variables in simple terms it will be something like this. Putting

* Extracts from the Convocation address by Dr. Malcolm S. Adiseshiah, delivered in June at the Tata Institute of Social Sciences, Sion, Bombay.

together the information from the census and the National sample survey, we know that 40 per cent of the 438 millions living in our rural country side and 60 per cent of the 108 millions living in our urban agglomerations are living at or below the Indian poverty line. I define the poverty line as the consumption of 2,200 calories per person per day or the spending of 50 paise per person per day in the rural areas or 72 paise per person per day in the urban areas at 1960—61 prices. The four key variables mean getting this group of our 50 per cent poor to increase their calorie consumption from 1,000—1,500 to 2,200 and to increase their spending on food, clothing and housing to 50 and 72 paise per person per day at constant prices and increasing that spending annually by 10 per cent so that by the end of the Sixth Plan period, twelve years from now, they are able to spend double of what they would be spending at the poverty line. The development plan which follows involves dismantling the present distribution system which caters solely to us, members of the middle and upper income groups and building a new kind of mass distribution net work serving our villages, hamlets, and city slums through which wage goods—rice/wheat, cloth, kerosene, dhal, sugar, edible oil etc.—are made available to the poor sector. It also means a new programme of protective protein enriched foods for our 14.5 crores of pre-school children and lactating mothers, protected water supply to the 60,000 villages who have no such supply, rural housing with basic amenities and an educational programme which will give every one basic skills and remove illiteracy. This minimum supply programme will require a production and infrastructural system which can provide employment to the 14 million currently unemployed and the 1,20,000 entering our labour force every week, And back of it all, it will mean extending our agricultural, technology to the 80 per cent of our marginal small, drought exposed, dry farmers, reordering our production priorities to produce massively, the wage goods referred to earlier, (which also require little or no imported machinery, foreign raw material and imported know how and so can contribute to our policy objective of self reliance) and capacity production of our heavy and basic industries. The savings drive and price policy will follow as a function of the strategy. Finally this production and distribution model requires replacement of the current centres of feudal and financial powers by wide popular participation in all areas of decision making.

Gaps in the Model :

Such is the Fifth Plan model that is emerging and calling for action from all of us in the Country, Government, legislators, business and labour leaders, the agrarian and academic community—What is the specific call to you Social Scientists graduating to-day? I will start with the simpler tasks that will be facing you and procced from there to those that are more difficult and complex.

Involvement in Planning : First the basic lesson that you have learnt here will have to be applied. The Social Sciences are not simply the producer of high level man power—they are that also - but are an integral part of the development model. Social Scientists are not only needed to execute the projects and programmes in the Plan, they have to make the Plan. You are not only Plan executors, You are Plan makers, because a basic pre-requisite of social awareness which is the basis of all planning is the correct diagnosis of the historical situation. You are equipped with the repertory of convictions and aspirations of the people with which you can now help plan the breaking down of our traditionalism and the building in of faith in Science to remake Society.

The Rationalisation Function : A second task facing you, the social scientists, is to examine carefully this facile assumption of modernisation on which our development model rests. The modernisation premise in our planning is that traditionalism is passing or has passed; that we are no longer a people satisfied with ourselves, our beliefs and our institutions. It also assumes the replacement of such traditionalism by a growing faith in reason to perceive reality, to change, adapt and mould it for our ends. This modernisation premise may be true. I do not know. What I do know is that we have growing primary and secondary data—no doubt defective and varyingly incomplete—but data which are consciously and scientifically collected on everything except on this crucial modernisation premise. We collect and process regularly data on population, morbidity and mortality, family planning acceptors and mix, crop forecasts, irrigation acreage, family budgets, poverty indices, and deciles, urban housing, literacy and schooling etc. But there are important areas of social life of which we know nothing. What is the role expectation of the small farmer, the landless labourer or the Harijan living in the segregated part of our villages? What do the religious leaders in our various communities believe, teach and preach about the role of reason and science in daily life? How does the average parent decide about the schooling, marriage and employment of the son or daughter? What do we know of the sense of frustration and alienation which is spreading through our young people, particularly the students in High Schools, Colleges and Universities leading to gheraos, strikes, violence and murder? Our development model is an abstraction to the extent that we lack data on its basic assumption. The social scientist has to fill in this serious gap, as part of the most visible and insistent rationalisation part of his vocation, the discovery of new social facts or new interpretations of known social phenomena.

Popularisation Function : The third task which follows from this rationalisation function is fraught with difficulties and dangers. It will involve delving into facts which are even hidden from Prime Ministers (which led one of them to inform the press somewhat laconically as he was emplaning to visit a neighbouring country that he had ordered the army to throw the enemy out of the country). It may require discovery of the facts which explain the refusal of our political parties to see the nexus between our run-away population and our socio-economic stagnation and increasing poverty. It will call for a factual study of the social, cultural and moral make-up of those living below the poverty line. It will demand an analysis of the complex factors which have led to our stagnant neglected yet over-exploited rural biosphere, along with the new pollutions and environmental imbalances induced by our helter-skelter industrialisation and manufacturing and agricultural technologies. Such a gap-filling task will necessarily call upon the social scientists to spread their discoveries among the people, as you in this Institute have done in publishing the monumental work—Field Studies in the Sociology of Indian Education. We talk of planning from below, of peoples, participation in the planning and execution process. But this requires that people know all the facts. The present policy of selective secrecy that we practise in our centralised technocratic planning system only divorces the universe of ends from the universe of means. The gap between our political pledges and plan targets and our technocratic programmes and execution procedures widens daily. Social sciences abhor all forms of selective secrecy. Hence you, the social scientists, must engage in the explanation and exposure of problems which are hidden or passed over in silence.

In this task of rationalisation and popularisation, qualitative social science research is as important as the pursuit of quantified methodology, because such research is aimed not only at our empirical objectives but even more at our political and ethical universe of values (to which I shall presently refer), not *only at our quantifiable results* but more importantly at our choice of finalities and goals.

Integration Function : Fourth you, the social scientists are equipped with the only means of integrating the development process, a process which necessarily has to be broken into phases. These phases are the setting of objectives, the formulation of strategy, the elaboration of programmes and the detailing of projects through the instrumentalities of research and analysis, consultancy and policy formation, formulation of schemes and execution of field projects. In such phased development planning, there is need for a two-fold process of integration. The first is to integrate the planning phases and instrumentalities into a meaningful system, which with the Systems Approach and its sub-system, the Planning Programming-Budgeting System with which the social scientist is equipped, can be fairly easily accomplished. The second integration is more complex and fateful in its consequences. All development models, all empirical planning begin, as we have seen, with a statement of objectives, which in our case today is growth, social justice, stability and self reliance. Such a statement of objectives is the starting point of any Systems Approach and represents one universe for the social scientist—the universe of verifiable benefits. But this empirical universe must be derived from two other universes — the political and the ethical. Our political universe has two goals — the security of our country from external aggression and internal peace through national integration, which are spelt out in the doctrine of Panch Sheel—peaceful settlement of disputes, respect for national sovereignty, non-interference, reciprocity and peaceful co-operation. Our ethical universe is the system of values spelt out in our constitution, " Justice, social economic and political, liberty of thought, expression, belief, faith and worship, equality of status and of opportunity and Fraternity, securing the dignity of the individual and the unity of the nation. " Behind these values are our religious, moral and philosophical concepts of truth, tolerance, charity and non-violence. The integration task of the social scientist is immensely complicated. The empirical objectives of growth, social justice, stability and self reliance are being confronted by stagnation, social injustice, instability and neo-colonialism. The political goals of external security and national integration are facing continuing external insecurity and national disintegration. The ethical values of truth, tolerance, charity and non-violence are overridden with growing corruption, casteism, communalism and violence. Even more, while the universe of empirical objectives are quantifiable and verifiable in terms of benefits and results, the universe of political goals and that of ethical values from which the empirical objectives are derived are not. It is the heart-breaking but imperative task of the social sciences to analyse, dissect, synthesize and propose lines of action that will reconcile the apparently irreconcilable at each of these levels of discourses. Even more, the social scientists possess the tools that can ensure the integration of the three universes, so that our plan objectives flow from the political ends of the country, and both derive ultimately from the ethical universe.

The Continuing Process of Learning :

For these tasks, facing you, as you leave this your Alma Mater, you have of course continually to learn and learn how to learn. Today marks only a stage, albeit

an important stage, in your lives, in this never ending process of learning how, where and what to learn. The scientific work that you have trained yourselves in, has been linked to a given social situation, to a particular moment in our history. That situation is fugitive. This moment is passing. What remains is your grounding in what has come to be called the monothetic discipline, the law seeking sciences, the science which call you all your life to identify laws and to be motivated by the ideal of learning, as objective, assured and independent of human opinions, attitudes and situations, as that which characterises physics, chemistry or mathematics, And as part of this life-long learning imperative is the corollary of interdisciplinary co-operation which beckons to you, to continue the multidisciplinary research and team work that you have learnt here. Research demands specialisation, but life is not divided into sociology, anthropology or economics, into natural sciences, life sciences and earth sciences. Our society presents us with situations which demand inter diseiplinary co-operation. We have learnt within each discipline, the need for this co-operation—the need to use the hypothesis of biology, the methods of mathematics and the findings of psychology, geography and anthropology to analyse any socio-ecomomic phenomenon. This multidimensional composition of social facts has of course always existed. But science and technology are creating daily entirely new conditions of life for us, and the development of media of expression and communication have introduced new social complexes—complexes which can only be apprehended and analysed by multidisciplinary team work. And it is with this rich equipment that you, social scientists, can and must join the national battle of the war against poverty—poverty and its accompaniments of ignorance, stagnation, humiliation, injustice and exploitation. And at this point our social science research becomes meaningful social action: the pursuit of truth becomes tested in the crucible of application That I know is the supreme joy and vocation of the social scientist, similar to that of our forefathers to whom to work was to pray, to us, to know is to act. That is true Science, real social science—where action is the fateful and fruitful dialogue between the human mind and human reality.

Social Sciences' Call to the Nation

And so I believe that the time is now overdue for a clearer and more explicit recognition by the Government, the world of business and Society in this country, of the role of social sciences and social scientists in national development. That recognition has started with the founding four years ago of the Indian Council of Social Science Research of which your Director is the distinguished chairman. The Council is presently engaged in a status study of social science research in the country, while at the same time promoting in every way oriented and developmental research. Now we must go further. I call upon the Government and society for the specific recognition of the role of the Social Sciences in development planning and more particularly for the moblisation of this scarce resource in the preparation of the Fifth Five Year Plan. This should be done by asking the council to perform the same kind of mobilising task as is being done by the National Committee for Science and Technology. Whether this be done by entrusting the council with the task or by attaching Social Science expertise to the major sectors of the planning process is secondary. What I am calling for is the clear recognition and full use of the social scientists of the country (not only its economists and statisticians) in the high stakes which our development model represents.

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OF
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(M I D S)

The Institute founded and run by Dr. Malcolm S. Adiseshiah is a charitable trust registered under the Madras Charitable Trusts Act.

The aim of the Institute is to contribute to the economic and social development in Tamil Nadu and India.

The activities of the Institute are :

— Studies and action-oriented research in micro-development problems;

— Documentation and library service in development programmes;

— Exchange and dialogue at the State, National and International levels on development issues;

— Publication of papers and research results of the institute.

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